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ABSTRACT

The need and demand for new doctoral nursing programs in the South was assessed, using data collected by the Southern Council on Collegiate Education for Nursing (SCCEN). To learn how many doctoral nurses are now employed and how many are anticipated to be needed by 1990, SCCEN surveyed all collegiate nursing education programs in the Southern Regional Education Board (SREB) region, as well as the larger (over 250 beds) hospitals, and state health agencies. Doctoral-level nurses were needed as faculty for college nursing programs and as leaders in the health care system. Without any additional doctoral programs, the SREB region will be short by 91 doctoral nurses by 1990, and the region will fall short by between 21 and 84 entering positions for doctoral students per year during 1985-1990. However, five of the six existing doctoral nursing programs in the region have no waiting lists of qualified applicants, and about 20% of the enrollments in these programs are from out-of-region. While there is a need for more doctoral students each year, it is doubtful that student demand will justify educational expansion. Background information on nursing education in the SREB states is provided for each level (associate, baccalaureate, master's, and doctoral). Current plans for doctoral programs and resource requirements are also reviewed in detail. (SW)

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Planning for Doctoral Nursing Education in the South

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Southern Regional Education Board

PLANNING FOR DOCTORAL NURSING EDUCATION IN THE SOUTH

Harold L. McPheeters

Southern Regional Education Board
1340 Spring Street, N.W.
Atlanta, Georgia 30309

1985

$8.00

TABLE OF CONTENTS

	Page
Summary and Interpretations	1
Background	16
Current Status of Collegiate Nursing Education in the South	21
Associate and Baccalaureate Degree Education in the South	21
Master's Level Nursing Education in the South	24
Doctoral Education in Nursing in the South	33
Issues Regarding Doctoral Nursing Education	40
The South's Plans for Doctoral Education in Nursing	43
Current Plans for Doctoral Nursing Education	45
Findings of Surveys of Needs and Demands	50
Need and Demand for Doctorally Prepared Nurses	50
Need and Demand for Doctoral Education in Nursing	55
Increased Accessibility for Part-time Study	60
Focus of Doctoral Education in Nursing and the Degree to be Awarded	63
The Research Commitment of Doctoral Programs	65
Faculty Specialities and Research Commitments in the South	67
Resource Requirements for Doctoral Nursing Education Programs	73
Method of Analysis/Construction	76
Discussion of Structure and Cost	76
Discussion of Program Size and Start-up Issues	87
Comment	92
Conclusions	98
References	101

LIST OF TABLES AND CHARTS

Table 1:	Survey of Schools of Nursing in the South, 1985	20
Table 2:	Basic Collegiate Nursing Education Programs and Graduations (A.D.N. and B.S.N.); Graduations of Registered Nurses from Baccalaureate Nursing Programs (R.N.-B.S.N.), SREB States, 1983	22
Table 3:	Admissions to A.D.N. and B.S.N. Programs SREB States, 1977 and 1982	23
Table 4:	Master's Degree Programs in Nursing; Enrollments and Graduations, SREB States, 1974 and 1983	25
Table 5:	Master's Degree Graduates, August 1983-July 1984, Enrollments (Fall 1984) from Schools of Nursing in the South	27-32
Table 6:	Number of Doctoral Programs in Nursing, United States and SREB States, 1973-1984	33
Table 7:	Enrollments and Graduations of Doctoral Programs in Nursing in the South, 1980-1984	34
Table 8:	Doctoral Nursing Programs, Graduations and Enrollments, SREB States	35
Table 9:	Source of Funds, by Percentages, for Conducting Doctoral Programs in Nursing	36
Table 10:	Enrollments in Doctoral Programs, Fall 1984	37
Table 11:	In-State and Out-of-State Students Admitted to Doctoral Programs	38
Table 12:	Doctoral Graduates Employed in Various Settings	39
Table 13:	Type of Doctoral Degrees Held by Nurse Faculty in Undergraduate and Graduate Nursing Programs in the South	41
Table 14:	Status of Planning for Doctoral Programs in the South as Reported on SCCEN Survey of Master's Programs	46
Table 15:	Target Dates for Admitting Students to Proposed Doctoral Programs in the South	47

Table 16:	Proposed Years to Complete Doctoral Degree in Projected Programs	47
Table 17:	Number of Students Expected to Enroll in Proposed Doctoral Programs	48
Table 18:	Major Focus on Research Area in Projected Doctoral Nursing Programs in the South	49
Table 19:	Academic Qualifications of Faculty of Schools of Nursing in SREB States, from SCCEN Survey, 1985	51
Table 20:	Nurse Faculty Considered Needed in Schools of Nursing in the South (1984 through 1989)	52
Table 21:	Additional Nurse Faculty that Schools of Nursing Would Actually Employ if Available (1984 through 1989)	53
Table 22:	Type of Doctoral Degree Desired by Graduate Schools of Nursing in the South Seeking Additional Faculty	54
Table 23:	Summary of Number of Nurse Faculty Currently Working Toward Advanced Degrees by State, All Levels of Nursing Schools	56
Table 24:	Number of Nursing Faculty Currently Working Toward Advanced Degrees, Schools of Nursing in the South Offering Associate Degree as the Highest Degree	57
Table 25:	Number of Nursing Faculty Currently Working Toward Advanced Degrees, Schools of Nursing in the South Offering Baccalaureate as the Highest Degree	58
Table 26:	Number of Nursing Faculty Currently Working Toward Advanced Degrees, Schools of Nursing in the South Offering Master's as the Highest Degree	59
Table 27:	Number of Nurse Faculty Currently Working Toward Doctoral Degrees, Schools of Nursing in the South with Doctorate as the Highest Degree	60
Table 28:	Choices and Expectations for Doctoral Education Among Nursing Faculty From Schools of Nursing in the South	61
Table 29:	Specialty Area and Research Area for Doctorally Prepared Faculty in Graduate Nursing Programs in the South	68
Table 30:	Estimated Percent of Doctorally Prepared Nurse Faculty who Are Engaged in Research in Graduate Schools of Nursing in the South	69

Table 31:	Number of Doctorally Prepared Nurse Faculty who Published in Referreed Journals in the Past Three Years in Graduate Schools of Nursing in the South	70
Table 32:	Number of Doctorally Prepared Nurse Faculty who Received Research Funding in the Past Three Years in Graduate Schools of Nursing in the South	71
Table 33:	Percent of Time Devoted to Research by Doctorally Prepared Nurse Faculty in Graduate Schools of Nursing in the South	72
Table 34:	Faculty Experience with Dissertation Advisement in Nursing Programs Offering Graduate Nursing Degrees within SREB States	97
Chart I	Key Values for a Typical Doctoral Nursing Education Program and the Ranges for Schools Participating in the SREB Seminar	78
Chart IIA	Typical Doctoral Nursing Curriculum Structure	79
Chart IIB	Typical Doctoral Nursing Program's Resource Requirements	80
Chart IIIA	Analysis of Breakeven Point: Faculty Requirements for Various Sized Doctoral Nursing Education Programs	88
Chart IIIB	Analysis of Breakeven Point: Analysis of Most Cost Efficient Class Size for Doctoral Nursing Education Programs	89
Chart IIIC	Analysis of Breakeven Point: Analysis of Faculty Make-up for Typical Doctoral Nursing Education Programs	90

SUMMARY AND INTERPRETATIONS

There has been a national surge of interest in doctoral education in nursing in the past few years. This interest in the need for qualified doctoral level nurses has been stimulated by the increasing complexity of the health care delivery system and the growth of collegiate nursing education programs--especially at the baccalaureate and master's degree levels. The Division of Nursing of the U.S. Department of Health and Human Services has encouraged the interest by making grants available to schools of nursing for planning and implementation of doctoral programs. The Division also co-sponsored, with the American Association of Colleges of Nursing, a national conference on quality in doctoral nursing education in the fall of 1984.

The graduate schools of nursing in the South have joined this move to establish doctoral programs in nursing to meet the need for doctoral level faculty to teach and conduct research in their schools and to administer complex nursing services in the region.

Currently there are six doctoral nursing programs in the 14 member states of the Southern Regional Education Board (SREB), including one which became operational in the fall of 1984. They are at the University of Alabama at Birmingham, the University of Florida, the University of Maryland, the University of Texas at Austin, Texas Woman's University, and the University of Virginia. The programs at the University of Florida and the University of Virginia are new and have not yet reached their full capacity. In addition, two new programs, at Louisiana State University Medical Center and at the University of Miami, have been approved to begin in the fall of 1985. There is still another doctoral program in the South--at Catholic University in

Washington, D. C.--which does not participate in the SREB compact. As many as 20 additional schools of nursing are in various stages of planning or proposing new doctoral programs; 11 or 12 of these schools propose to start their doctoral programs before 1990. (At this time most health professions education programs are experiencing declining numbers of applicants and enrollments as a result of cutbacks in federal funding and increasing competition in the health care marketplace. It seems paradoxical that nursing education should be proposing to more than double the number of doctoral education programs at such a time; however, this trend reflects the continuing progress of nursing's move into the mainstream of higher education.)

Because of the increasing numbers of proposals for new doctoral nursing programs, the state higher education agencies of the South asked the Southern Regional Education Board to analyze the need and demands for such a large and rapid expansion. SREB's analysis was done using data collected by the Southern Council on Collegiate Education for Nursing (SCCEN). This summary and interpretation section is based on the more detailed accounts of the reported needs, plans, and required resources which will be found in the later chapters of this report.

Doctoral nurses, of course, differ from direct patient care practitioners who provide bedside care and community health nursing. Doctoral nurses are overwhelmingly the educators, researchers, and, sometimes, the administrators for the nursing profession, especially for the highest academic levels of the profession. In addition, doctoral nurses are increasingly being employed by some of the larger hospitals and newer kinds of health care agencies in research and administrative positions. These are the markets for doctoral nurses.

Basic nursing education has moved away from hospital-based diploma schools

of nursing to collegiate programs at the associate and baccalaureate levels. In the South, 91 percent of new nurses now graduate from collegiate educational programs. Faculty persons for basic educational programs and clinical and administrative nursing specialists are educated in master's degree programs in nursing. The South now has 52 master's level programs in nursing.

At present there are about 3,650 nurses with earned doctoral degrees employed in nursing the United States, but nearly two-thirds of these nurses have their doctorates in the biological or social sciences or in education--not in nursing. There is an understandably strong feeling within the nursing profession that top level researchers and academicians for the profession should have their doctorates in nursing rather than in some other field, and it is this desire that has led to a surge of interest in the development of doctoral nursing education programs. At a fall 1984 conference of the Division of Nursing and the American Association of Colleges of Nursing it was reported that the number of doctoral education programs in nursing in the nation was expected to grow from 34 to 73 by 1988 as a result of this commitment of the profession to doctoral education in nursing. As the numbers of doctoral programs in nursing have grown, the numbers of nurses taking their doctorates in nursing have also grown.

There are many ways to define the need for doctoral nurses. Using a need-based model developed by the Western Interstate Commission on Higher Education (WICHE), a national need for nearly 14,000 doctoral nurses by the year 1990 has been proposed. However, there is no way that such a need can be met. Combining all of the nurses who are likely to obtain their doctorates in any field will yield a total of only about half that number.

To obtain a better idea of the need in the South, SCCEN conducted a survey

of all collegiate nursing education programs in the region and of the larger (over 250 beds) hospitals and the state health agencies that might consider employing doctoral nurses in administrative or other positions to learn how many doctoral nurses are now employed and how many are anticipated to be needed by 1990.

The survey of the educational programs showed that there are currently 854 doctoral nurses employed in the 346 schools that responded. Another 874 nurse faculty members are currently enrolled in some doctoral program. The deans of these schools indicated that they will need "an additional 1,077 doctoral level faculty persons" by 1990 and that they expect to employ 827 new doctoral level persons by that time. It is not entirely clear whether the respondents intended to include their current faculty persons who are working toward doctoral degrees among the 1,077 additional doctoral level persons they felt they needed, but it appears most likely that is the case since generally the pattern is for faculty persons to remain in academic positions after they have completed their doctorates. The respondent schools of nursing expect 1,115 of their faculty persons to enroll in doctoral programs between now and 1989. While only about 32 percent of those faculty persons currently enrolled in doctoral programs are in doctoral programs in nursing, 425, or about 71 percent, of the remaining doctoral students probably would have enrolled in nursing programs if such a program had been readily available. The deans indicate that they strongly prefer to employ faculty persons with doctorates in nursing.

The survey of the hospitals found 74 doctoral nurses currently employed, an additional 124 staff nurses currently enrolled in doctoral programs, and the expectation that an additional 413 staff nurses will enroll in doctoral programs in the next five years. The hospitals need and expect to employ 280 doctoral nurses over the next five years, but the job descriptions are not expected to

require the doctoral degree, just as those doctoral nurses currently employed by the hospitals are not in positions that require a doctoral degree. The seven state health agencies that replied employ no doctoral nurses, but 20 of their staff nurses are presently enrolled in doctoral programs. The agencies expect to employ 14 doctoral nurses by 1990, and they expect 34 more staff nurses to enroll in doctoral education by then.

From this analysis, the additional need for doctoral nurses between now and 1990 in the South is 1,371, but the schools and health care agencies expect to be able to employ only 1,121. Assuming that the faculty and hospital staff persons who are already working for their doctorates will complete their studies and remain in teaching or in hospital or agency employment, 1,018 of these positions would be filled by doctoral staff presently employed. If we assume that 50 percent of the additional 103 needed nurses will obtain their doctorates in nursing (a high assumption since the present rate is only 33 percent), the number of additional nurses with doctorates in nursing that will be needed by 1990 is 52. These additional 52 doctoral nurses plus the 314 faculty persons and hospital staff persons who are already enrolled in doctoral nursing programs equals 369 total additional doctoral graduates in nursing needed by 1990. At the completion rate of 55 graduates per year from the South's existing doctoral programs in nursing (not including Catholic University, which does not participate in the SREB compact), the region will be short by 91 doctoral nurses in 1990 based on the needs defined by the deans of the schools of nursing and the nursing directors of the region's major hospitals. Graduations from the existing programs will increase slightly as the two newer schools begin to produce graduates, but this will reduce the deficit only a little.

These calculations give no consideration to attrition of doctoral level

nurses from death, retirement, or change of careers; nor do we have any data on the attrition patterns of doctoral nurses. There will surely be some attrition, but it is impossible to predict what it will be. Nurses obtain their doctorates a bit later in life than persons in many professions, but they then tend to remain employed and in the field of nursing at higher rates than nurses who do not obtain advanced education.

The survey respondents indicated that 1,562 nurses will enroll in doctoral programs in the next five years. If we assume that 50 percent of these nurses will enroll in doctoral programs in nursing, the region will need a total of 781 entering positions, or an average of 156 new enrollee positions per year. If we assume that 70 percent of these nurses will apply for doctoral programs in nursing (twice the current rate), the region will need a total of 1,093 entering positions, or 219 per year. The region currently offers about 135 entering positions per year for both full-time and part-time applicants. At the 50 percent rate, the region will be short by 21 openings per year (a little more than the class size of one additional typical doctoral program). If one assumes the 70 percent rate of entry into doctoral nursing programs, the region will need an additional 84 entering positions per year, or the equivalent of five or six additional doctoral programs with an average class size of 15.

Existing Doctoral Programs

The existing six doctoral programs in nursing in the 14 states of the SREB compact are all in public universities. In 1984-85, these schools had a total of 215 full-time and 236 part-time students, for a total of 451 enrollees. Two of the programs are new and expect to expand their enrollments slightly. When they begin to produce graduates, the total number of graduates will rise to around 65 per year.

The existing doctoral programs serve students from all of the states of the South, and also a number of students from outside the region. The Texas schools enroll nearly a third of their students from outside the Southern region, and the University of Maryland enrolls students from the Northeast and other regions. The South might make more use of the existing doctoral programs if these positions now taken by students from outside the region were made available for more Southern students.

The existing programs, except the new program at the University of FLorida, do not maintain waiting lists of qualified applicants, nor do they turn away any numbers of students who are qualified. In fact, all but one of the six programs report they are underenrolled in relation to their planned capacity.

The Demand

This brings up the issue of the demand, in contrast to the need, for doctoral education in nursing. The figures for need represent the doctoral nurses that deans and hospital nursing directors reported they would realistically plan to employ by 1989-90. As such, the figures are probably more realistic proposals than one might obtain from a formula of idealized need, but they are still likely to be in excess of what schools and agencies will actually be able to employ. Both higher education and the health care system are in states of slight contraction as a result of cutbacks in federal funds and the pressures of cost containment. It is likely that funding for higher education will remain at something comparable to the present levels of funding. Thus, there will surely be some increase in the demand for doctoral nurses, but probably less than respondents have projected as the need.

The student demand for doctoral education in nursing is difficult to assess. For a variety of reasons, many fewer persons actually enroll in

doctoral education than declare their intentions to do so. One of the major reasons is funding; most nurse candidates require stipends or they must attend part-time. It appears doubtful that there will be an increase in the numbers of stipends; more likely they will be reduced.

The actual student demand for doctoral education in nursing in the South is currently in balance with the number of openings available in the existing doctoral programs. While there would be some increase in applications if new programs were located closer to home, it is unlikely, based on current applications and enrollments, that this would be large; instead, the new schools would enroll some applicants who would otherwise attend one of the existing programs.

A serious consideration is that the region's master's degree programs, from which most doctoral programs draw their applicants, are underenrolled by 347 students. The region had a 9.4 percent decline in graduations of master's degree nurses between 1981, when there were 1,459 graduates, and 1983, when there were 1,295. This is largely the result of the cutbacks in student loans and scholarships, but it poses a problem for the future demand of applicants for doctoral education in nursing.

Need for Access

One of the points frequently made by nurse educators is that there is a need for doctoral education programs to be accessible to the potential candidates. There are two aspects to accessibility--time and distance. Clearly the time aspect is more important to doctoral candidates. Even if the program is located nearby, candidates are unable to leave their jobs and attend doctoral studies. There are many variations on part-time education--evening classes, weekend courses, summer programs, as well as part-time enrollments in regular courses--and there is a definite need for part-time doctoral nursing education.

Geographic access is also important, especially if the educational opportunities lie within a few hours driving time of the nurses' homes. However, this need might also be met by consortial arrangements whereby much of the coursework could be taken at universities near home and the credits transferred to the school that will award the degree. None of these are ideal arrangements for doctoral education, but the realities of the access problem for doctoral candidates make it almost essential that there be special arrangements to accommodate this need.

The Degree

There are two major doctoral degrees in nursing--the Ph.D., which is a research degree, and the D.N.S. or its equivalent, which is a professional degree. Both feature research, but the Ph.D. is focused on theory building and research methodology while the D.N.S. features clinical and programmatic research of concern to the application of nursing knowledge. All but three of the proposed doctoral programs in nursing plan to offer the Ph.D. It is not clear why the interest is so strongly in favor of the Ph.D., but this issue will be decided by the setting of each program, and by the policies of the institution in which each program is located.

Research Productivity. One of the major reasons for needing doctoral programs in nursing is to increase the amount of research about nursing being done by nurses. Most of this research will be conducted by the faculties of graduate schools of nursing with support from federal research grants. Doctoral programs should be among the leaders in producing such research. While there are no studies directed specifically to nursing, we have reviewed the factors that seem to be related to the research productivity of academic

programs in the biological sciences. There, the overall size of the program is the factor that correlates most closely with productivity. Presumably this is because a larger community of scholars stimulates and motivates its members to become active in research. Small programs are likely to be much weaker in research.

Doctoral programs also face the likelihood that there will be increased competition for the limited amount of federal funds for federal research grants.

Resources for Doctoral Education. Little has been documented about the resource requirements of doctoral nursing education programs because the doctoral programs are usually conducted in collaboration with master's degree programs where faculty and administration serve both programs. However, there are significant costs related to doctoral programs and their commitment to large amounts of one-to-one instruction in supervising the research work of doctoral candidates. A program cost analysis/construction seminar was conducted to learn more about the resource requirements of the existing doctoral programs and to describe a "typical" doctoral program. This seminar used the Program Cost Analysis/Construction Method of analysis.

The "typical" program that will be most cost beneficial has a class size of 15 students, a faculty of 8 full-time faculty, and costs of $18,450 per student per year. A class size of between 10 and 15 students is also relatively cost beneficial, but it raises the average cost per student per year to $20,000, or $60,000 for the full three-year program. This is because the program still requires a critical mass of seven faculty persons with a blend of expertise in the various clinical specialties. The next most cost beneficial class size would be 30.

The start-up costs for most doctoral programs will be less than would be

needed if the programs were undertaken without the base of a master's program. The ability to phase in the program by using some of the master's degree faculty during the transition period assumes that there is some unused faculty capacity in the master's programs. Because of the underenrollment in master's programs, this is generally the case.

Perhaps most critical is the availability of faculty resources. The faculty for doctoral programs should hold earned doctorates, and they should also have experience in conducting and publishing their own independent research and in supervising graduate students in their dissertation work. Each program requires a critical mass of seven such faculty persons. The survey of the schools of nursing of the South that offer the master's as their highest degree identified 79 faculty persons who have served as dissertation committee members and 46 faculty persons who have served as co-chairperson of such committees. These programs include most of the schools that are presently considering developing new doctoral programs. It may be possible for the schools of nursing of the South to recruit the qualified faculty they would need from other parts of the nation, but the competition from all the proposed new doctoral programs in other parts of the nation will make this problematic.

Conclusions

The ferment among nursing schools to move to doctoral programs has gained considerable momentum, with schools competing with each other to establish doctoral programs. The need for doctorally prepared nurses to be the faculty persons for collegiate nursing education programs is real, and there is also need for doctorally prepared nurses for leadership positions in the health care system.

Analysis of the figures shows that without any additional doctoral programs, the region will be short by 91 doctoral nurses by 1990 and that the region will fall short by between 21 and 84 entering positions for doctoral students per year during those five years.

The question of demand for doctoral education is another matter. Five of the six existing doctoral nursing programs report that they have no waiting lists of qualified applicants and that they are not denying admission to qualified applicants. In addition, about 20 percent of the enrollments in these programs are from out-of-region. This discrepancy between the marketplace need for doctoral nurses and the demand of nurses for doctoral education is a serious matter because today's health professions education programs are driven by student demand, not need. The same discrepancy exists in regard to master's level education in nursing and in several other health professions. In large measure the decline in demand is the result of reduced federal funding for scholarships and loans, but it is also the result of higher tuitions. The likelihood that the federal government will further cut student loans and scholarships and that the states will raise tuitions makes it even more difficult to project increased enrollments for the near future.

While the need analysis shows that the region could use an additional 21 to 84 entering slots for doctoral students each year, it is doubtful that the student demand will justify such expansion. In fact, unless the student demand can be increased, the existing doctoral programs will remain underenrolled. In this situation new programs would very likely end up also underenrolled, while simultaneously drawing enrollees from the existing programs.

On the other hand there are some factors that might provide a different perspective within individual states:

-- Not every school of nursing and hospital responded to the survey. While the response rate from the schools was very good, there probably is some undetected need for doctoral nurses from the non-responding schools and health care agencies.

-- There is a growing trend for nurses to want to obtain their doctorates in nursing rather in non-nursing specialties. We have assumed that the percentage choosing nursing doctorates will rise from 33 percent to 50 percent or perhaps 70 percent, but this latter figure seems generally too high for the near future.

-- If nurse scholarship funds could be provided by state governments or other sources, the numbers of candidates for doctoral education would probably increase. However, this notion needs careful study. The Maryland State Department of Budget and Fiscal Planning has recently recommended that the State Scholarship Board consider abolishing a program of scholarships for graduate nurses at the University of Maryland because there has been insufficient demand for the scholarships. This has resulted from low level stipends that were restricted to full-time students. Steps are being taken to correct this problem.

-- Some states might do well to consider using stipends to send students to underenrolled SREB Academic Common Market schools in other states of the region rather than starting their own programs. It would be more cost-effective to spend $10,000 per year per student for such an arrangement than $18,000 to $20,000 per year per student to create a new program within the state.

-- There is a trend for more health care organizations, such as health maintenance organizations and preferred provider organizations, to employ doctoral nurses in their research and management positions. This trend is only beginning and varies from locality to locality so figures are not available.

Despite the overall projections for the region, individual states and schools of nursing may feel that new doctoral nursing programs should be undertaken. The states should carefully consider the numbers and types of new programs they authorize. The data suggest caution in creating new programs because of the wide discrepancies between figures for need and actual student demand, but any new programs should be located in institutions that have the capacity to

mount strong research doctoral programs that also provide for part-time and outreach arrangements to meet the access needs of potential candidates. The cost-beneficial class size of 15 students might be varied, but very small class sizes are more costly and are likely to result in weaker programs because the aggregate community of scholars will be smaller.

Programs will gain strength by collaborating with other doctoral departments of their own universities as well as with those of other universities within the state. Collaborative consortial arrangements are needed to make the most effective use of available resources in any rare and expensive kind of doctoral program. This includes regional sharing through the SREB Academic Common Market as well as intra-state sharing.

While this report finds that there is a need for more doctorally prepared nurses, it also finds that student demand for doctoral education is presently at a level which is not sufficient for full enrollment in the existing doctoral programs of the South. The data show that the same shortfall in student demand also exists in the region's master's degree programs and, to a lesser extent, in the baccalaureate programs in nursing. Only the associate degree programs show strong enrollments. This trend has serious implications for future enrollments and, indeed, for the future of nursing care in the increasingly technological health care system. There is need for more nurses with high levels of clinical expertise and with the skills to administer and evaluate nursing programs for the new technologies. This may be the time for the states or other benefactors to consider establishing carefully targeted financial assistance programs for nurses at all advanced educational levels. Such financial aid programs should provide stipends or loans of sufficient size to be truly helpful with the students' costs of tuition and subsistence, and they

should be designed to meet the states' needs for advanced nurses. The financial aid programs should also be well publicized and closely monitored to assure that they are meeting the objectives as designed by each state.

This report makes little comment on the quality of doctoral nursing education programs. The matter of quality is essentially an issue for the nursing profession and professional educators. However, we share the concern expressed in recent reports, such as that of the Institute of Medicine's Nursing Study Committee, which stress that a proliferation of small and relatively weak doctoral programs will lower the quality of doctoral education. Doctoral programs require a critical mass of faculty sufficient to provide many dimensions of expertise for the students. Even more important is the need to build quality research programs for the nursing profession. This requires both a sizable community of scholars and the leadership commitment of the deans and the faculty. The development of a number of small programs is likely to dilute the research endeavor of the nursing profession, which is only now gaining the stature that society and the nursing profession need. The report, "Proceedings of Doctoral Programs in Nursing: Consensus for Quality" of the August 1984 conference sponsored by the American Association of Colleges of Nursing and the Division of Nursing of the Department of Health and Human Services (Amos, 1985), explores the quality issues in considerable detail.

BACKGROUND

The 14 Southern states have made major strides in the transfer of nursing education from hospital-based diploma schools to collegiate programs. Today 9 of 10 new basic nursing students in the region are graduates of collegiate nursing programs at the associate or baccalaureate degree levels (National League for Nursing, 1984). Since 1960, the South has nearly tripled the number of nurses who graduate from basic nurse education programs each year (SREB, 1983). The region has also made remarkable progress in the development of master's degree programs to prepare faculty persons for the basic nurse education programs and administrators and clinical specialists for the health care delivery system.

The region has been somewhat slower in the development of doctoral nursing education programs to prepare faculty for the master's level programs, administrators for the basic education program, researchers to develop new knowledge, and administrators who can make nursing more effective and efficient in the modern technological health care system.

In addition to the aforementioned established doctoral nursing programs (the University of Alabama at Birmingham, the University of Florida, the University of Maryland, the University of Texas at Austin, Texas Woman's University, and the University of Virginia), a survey reveals that 16 schools of nursing have their institution's approval to plan doctoral programs, and faculty groups in six more schools are considering the development of doctoral programs. Two of the 16 programs in planning have been authorized to begin in the fall of 1985--the Louisiana State Medical Center and the University of Miami.

The Institute of Medicine's 1983 report, Nursing and Nursing Education, noted that the rapid expansion of doctoral programs in the nation from 6 in 1970 to 24 in 1982 brought sufficient problems that future increases should proceed at a more measured pace. The report stated:

> The National Research Council noted in 1982 that the 40 percent increase in doctoral programs between 1977 and 1981 had detracted from efforts to develop quality programs, and that uneveness in the quality of research training programs evidenced in its committee's 1977 survey and site visits had been perpetuated rather than alleviated (p. 137).

The South is faced with a possible 350 percent increase in the number of doctoral programs between now and 1990, and more after that.

Several of the proposals for new doctoral nursing programs are currently being reviewed by state higher education agencies, which are responsible for the review and approval of all new program requests in state public institutions. SREB was asked by the staffs of 8 of the 14 state higher education agencies in the South to undertake a study of the needs, demands, the availability of faculty, the availability of teaching and research resources, and the costs for doctoral nursing education in the South so that the state agencies would be able to respond more knowledgeably to requests for establishing additional programs. All these factors must be considered by state policymakers to assure that the state is not creating educational programs for which there is insufficient need or demand.

Current changes in financing the health care system have significantly reduced the demand for health professionals so that student applications and enrollments have declined in most of the health professions schools (Department of Health and Human Services, 1984; Council on Dental Education, 1984; American Medical Association, 1985). In addition, many expensive professional

education programs are better shared on a regional basis, since not every state needs or can afford a program in every specialty. The interstate contract program and the Academic Common Market administered by SREB already provide for regional sharing of programs in medicine, osteopathic medicine, veterinary medicine, public health, optometry, dentistry, and occupational therapy as well as nursing. Five of the region's existing doctoral programs participate in the SREB Academic Common Market whereby students from other participating states are accepted at in-state tuition rates. The doctoral program at the University of Florida has not yet participated in the Academic Common Market.

The Southern Council on Collegiate Education for Nursing (SCCEN), a membership organization of the region's collegiate programs in nursing, addresses issues of current concern to nursing education programs through conferences, projects, and publications. SCCEN is a separate organization, but functions in close association with SREB. In 1984, SCCEN planned to consider as one of its special concerns all aspects of graduate education in nursing, including the development of doctoral programs, and agreed to participate with SREB in such a study of the issues. The staff of the Council assisted in the development of the data for this report, but the report was written by SREB staff.

It was felt that a study could be done rather quickly and at relatively low cost because much of the required data was believed to be readily available. The staff began in May 1984 to gather data about the existing doctoral programs and the proposed doctoral programs that were known to be in firm planning stages in the region's schools of nursing. In addition, the state higher education agencies were surveyed to learn what they knew about planning for doctoral programs in nursing and to get their judgments about the

need for doctoral level programs in their states. The literature of doctoral education was surveyed and staff reviewed findings of recent feasibility studies for doctoral programs, particularly those of the SREB region, such as the 1979 study conducted by the University of Virginia. This study is now six years old, but it is the most comprehensive region-wide study of the needs for doctoral education in the South in recent years. Staff of SCCEN and SREB also met with staff from the region's doctoral programs in nursing at the American Nurses' Association conference in New Orleans in June 1984 to get a better understanding of how these programs operate, their students, their faculties, and their views of major issues to consider in expanding the number of doctoral programs in the region.

In August 1984, staff met with an advisory group of three deans of graduate nursing education programs and three health professions specialists from the state higher education agencies to review the data that had been assembled and to make recommendations for a regional report. The advisory group determined that the existing data were insufficient to answer some of the critical questions and recommended that further information was required about the need for doctorally educated nurses, the extent to which the need translates into student demand, and the faculty and cost requirements for doctoral nursing education programs. They recommended that an interim report be issued with the information then available and that staff take steps to obtain additional information for the final report.

Since that time an interim report has been issued, and surveys have been conducted by SCCEN of all the region's collegiate programs in nursing to learn more of faculties' qualifications, the need for doctorally prepared faculty, and the patterns of doctoral student enrollments. The surveys, completed in spring

1985, were conducted through a series of questionnaires mailed to the schools; the schools' response rate was 91 percent. Table 1 shows the number of schools contacted and the number that responded to the survey.

Table 1

Survey of Schools of Nursing in the South, 1985

Highest Degree Offered	Schools in Region	Responded
Doctoral (all also offer master's and baccalaureate)	6	6
Master's	46	42
Baccalaureate	105	81
Associate Degree	225	217
Totals	382	346

In an effort to determine the need and demand for doctorally prepared nurses in settings other than schools of nursing, questionnaires were mailed in spring 1985 to the administrators of hospitals having 250 beds or over and to each of the 14 state health departments. Of the region's 538 hospitals having more than 250 beds, 215 responded to the questionnaire, making a response rate of 40 percent. Only 7 of the 14 state health departments responded. The low response rate limits the usefulness of these data.

Staff also arranged a program cost analysis/construction seminar which was conducted by Dr. Meredith A. Gonyea, president of The Center for Studies in Health Policy, Inc. of Washington, D. C., to develop figures based on the actual faculty and student contact hours required for ongoing doctoral programs to provide a range and a "typical" pattern of the faculty and cost requirements of such programs. The findings from these activities are included in this final report.

CURRENT STATUS OF COLLEGIATE NURSING EDUCATION IN THE SOUTH

In nursing, as in most other health professions, the South traditionally lagged behind the rest of the nation, both in the number of practitioners per 100,000 population and in the number of education programs that prepare practitioners. Until 1960, in the South, as in other parts of the nation, most nurses received their education in hospital-based schools of nursing that awarded diplomas after three years of classroom instruction and supervised clinical experience on the wards of the hospital.

Associate and Baccalaureate Degree Education in the South

The South was in the vanguard when the move came to transfer nursing education from the diploma schools of nursing to collegiate programs at the associate (A.D.N.) or baccalaureate (B.S.N.) levels. The transfer was facilitated by the rapid development of two-year community/junior colleges across the region and the stimulation of federal funds for collegiate education programs. The activities of SREB and SCOPEN also encouraged and assisted the transformation. By 1983, 91 percent of the South's basic nursing students were graduated from A.D.N. and B.S.N. collegiate nursing programs (National League for Nursing, 1984). Table 2 shows the number of graduations from A.D.N. and B.S.N. programs and the number of Registered Nurses (RNs) who received the B.S.N. degree from programs designed for nurses who had already obtained a basic nursing license to move to higher levels of academic achievement.

Table 2

Basic Collegiate Nursing Education Programs and Graduations (A.D.N. and B.S.N.); Graduations of Registered Nurses from Baccalaureate Nursing Programs (R.N.-B.S.N.) SREB States, 1983

	Basic A.D.N.		Basic B.S.N.		R.N.-B.S.N.
	Programs	Graduations	Programs	Graduations	Graduations
United States	764	41,849	421	23,855	8,893
SREB States	264	12,874	136	6,454	2,224
Alabama	20	941	13	706	167
Arkansas	11	537	7	163	24
Florida	25	2,346	13	451	203
Georgia	19	788	13	392	134
Kentucky	21	994	7	189	195
Louisiana	6	378	10	393	52
Maryland	14	841	6	443	204
Mississippi	14	630	7	293	116
North Carolina	38	1,090	12	667	156
South Carolina	13	459	4	232	96
Tennessee	17	959	9	448	111
Texas	40	1,564	21	1,380	431
Virginia	15	796	9	539	232
West Virginia	11	551	5	158	103

Source: Nursing Student Census with Policy Implications, 1984. New York: National League for Nursing, 1984.

There have been some decreases in entering enrollments in baccalaureate nursing programs in recent years. This modest decline is probably the result of wider career opportunities for women, who in the past were limited to the more traditional female professions of nursing, teaching, and social work, but now may choose careers in business, medicine, law, and other professions that were formerly dominated by men. Table 3 shows that there have been increases

in the number of nurses who enroll in associate degree programs; based on current patterns, it is likely that many will choose to continue their education to the baccalaureate level.

Table 3

Admissions to A.D.N. and B.S.N. Programs
SREB States, 1977 and 1982

	A.D.N.		B.S.N.	
	1977-78	1982-83	1977-78	1982-83
United States	52,991	63,947	37,348	37,264
SREB States	18,151	22,416	11,521	11,158
Alabama	1,089	1,793	1,429	1,318
Arkansas	819	759	356	430
Florida	2,603	3,276	723	812
Georgia	1,474	1,568	358	589
Kentucky	1,385	1,585	473	385
Louisiana	643	795	1,038	738
Maryland	1,206	1,346	569	627
Mississippi	868	1,202	504	562
North Carolina	1,451	2,082	893	788
South Carolina	705	1,021	401	338
Tennessee	1,330	1,336	734	881
Texas	2,774	3,363	2,720	2,310
Virginia	1,030	1,237	1,063	1,029
West Virginia	774	1,053	260	351

Source: Nursing Student Census with Policy Implications, 1984. New York: National League for Nursing, 1984.

The graduates of baccalaureate educational programs for nurses who already have their associate degrees plus the graduates of basic educational programs at the baccalaureate level make up the supply of potential students for graduate

education in nursing. It is expected that larger numbers of nurses will be educated in baccalaureate programs in the near future because the national nurse associations have established the objective that the baccalaureate degree should be considered the basic requirement for entry into professional nursing after 1990. Currently, none of the states has built this requirement into the licensure provisions for professional nurses. A larger pool of nurses with baccalaureate degrees will very likely increase the number seeking graduate education at the master's and doctoral levels.

Master's Level Nursing Education in the South

The South was the first section of the nation to plan for graduate nursing programs on a regional basis. In 1951, an SREB-appointed special committee on nursing education identified the need for master's programs in nursing to prepare "adequately trained instructors, supervisors, and administrators." At that time there were no graduate programs in nursing in the region. As basic nursing education began to move into collegiate programs, there was a need for nurse faculty with advanced degrees, but to obtain such degrees nurses either had to leave the South or take their advanced education in a field other than nursing.

The first six master's programs, established by the mid-Fifties, were developed through the cooperative study, planning, and action of SREB and the existing baccalaureate programs. Those programs were located at Emory University, the University of Alabama, the University of Maryland, the University of North Carolina at Chapel Hill, the University of Texas at Austin, and Vanderbilt University. Criteria for establishing master's degrees were jointly agreed upon by all institutions, as was the allocation of specializations among the six original programs. Even funding was a cooperative venture among three foundations--the Commonwealth Fund, the W. K. Kellogg Foundation, and the Rockefeller Foundation.

There has been progressive development of master's degree education programs in nursing so that there are now 52 programs in the South. Table 4 compares the number of programs and the enrollments and graduations in 1973-74 (when there were 20 programs), and in 1982-83 (when there were 48 programs).

Table 4

Master's Degree Programs in Nursing; Enrollments and Graduations
SREB States, 1974 and 1983

	Number of Programs		Enrollments		Graduations	
	1974	1983	1974	1983	1974	1983
United States	88	154	7,858	18,112	2,624	5,039
SREB States	20	48	1,717	4,616	599	1,295
Alabama	1	3	98	296	46	148
Arkansas	2	2	31	115	17	24
Florida	1	3	42	381	46	33
Georgia	2	3	188	330	61	96
Kentucky	1	2	26	88	23	54
Louisiana	2	2	114	257	26	80
Maryland	1	2	207	447	109	122
Mississippi	1	3	38	104	13	42
North Carolina	2	6	107	315	51	120
South Carolina	1	3	48	216	10	38
Tennessee	2	3	69	245	29	70
Texas	2	9	648	1,220	147	277
Virginia	2	6	101	505	21	170
West Virginia	-	1	-	97	-	21

Source: Nursing Student Census with Policy Implications, 1984. New York: National League for Nursing, 1984.

While the number of master's programs has more than doubled, an increasing proportion (over half) of the enrollment is of part-time students who continue

to work while they study. This has become an increasingly necessary pattern as stipends for graduate nursing education have diminished. In fact, the region had a 11.25 percent decline in graduations from 1981 (1,459 graduates) to 1983 (1,295 graduates) (NLN, 1982-1984). While this results partly from a recent decline in the absolute numbers of enrollees, it can be attributed mostly to the increasing proportion of part-time enrollees who, of necessity, take longer to accumulate the credits required for graduation. The result is that several of the South's master's degree programs in nursing are underenrolled. The 1985 survey found that 27 master's programs reported enrollments below capacity; the total shortfall of full-time students was 347. No school reported a waiting list of qualified applicants.

Most of the students in master's programs specialize in advanced clinical practice (82 percent). The remainder specialize in a functional area--teaching or administration/supervision. Many master's programs offer a clinical specialization as the major focus and teaching or administration as the minor focus. There are many variations in titles and programs. Table 5 shows the schools of nursing of the South that offer master's programs, the titles of their programs, and their 1983-84 master's degree graduations and enrollments.

Graduates of master's programs are strongly recruited to become faculty persons for associate and baccalaureate nursing programs. In 1985, associate degree programs had 1,838 master's degree nurses on their faculties; baccalaureate program faculty accounted for an additional 849 master's degree nurses. These nurses are also sought by hospitals and health service programs that feel the need for their expertise as clinical nurse specialists. In addition, numbers of hospitals and health care programs seek master's degree nurses with specialization in administration to become nursing administrators within their

Table 5
Master's Degree Graduates
August 1983 - July 1984
Enrollments (Fall 1984), from Schools of Nursing in the South

	Program Major	Number Graduated 8/1/83 - 7/31/84	Total Enrollments Fall 1984 Full-time	Part-time
ALABAMA				
Troy State University, Montgomery	Educational Administration			
	Curriculum Development			
	Maternal-Child Health Nursing		6	12
	Adult Health Nursing		9	30
	Advanced Nursing Clinical Practice			
	Maternal-Child Health			1
	Adult			3
	Undeclared/Undecided			2
	TOTAL		15	48
University of Alabama, Birmingham	Advanced Nursing Clinical Practice			
	Oncology			
	Gerontology			
	Psychiatry/Mental Health	2	7	4
	Community Health	15	15	6
	Pediatrics	10	4	13
	Maternal-Child Health	17	12	16
	Rehabilitation	1		2
	Primary Health Care - Adult	25	22	38
	Primary Health Care - Pediatric		11	
	Cardiovascular	12	17	14
	Nursing Service Administration			
	Hospital	9	16	20
	TOTAL	91	104	113
University of Alabama, Huntsville	Advanced Nursing Clinical Practice			
	Primary Health Care - Family	4	6	4
	Adult Acute Care	6	14	15
	TOTAL	10	20	19
University of Southern Alabama, Mobile	Educational Administration			
	Curriculum Development			
	Maternal-Child Health Nursing	2	1	6
	Adult Health Nursing	4	5	27
	Community Mental Health Nursing			6
	Nursing Service Administration			
	Hospital			18
	Community			7
	Other		3	8
	TOTAL	6	9	72
ARKANSAS				
University of Arkansas, Little Rock	Advanced Nursing Clinical Practice			
	Medical-Surgical	6	6	39
	Gerontological		3	8
	Psychiatric/Mental Health	3	6	14
	Community Health	3		2
	Pediatric			3
	Maternal-Child Health			7
	TOTAL	12	15	73
University of Central Arkansas Conway	Advanced Nursing Clinical Practice			
	Medical-Surgical	2	5	14
	Psychiatric/Mental Health			2
	Community Health - Family	2	4	2
	TOTAL	4	9	18
FLORIDA				
Barry University, Miami Shores	Educational Administration			
	Teaching			15
	Nursing Service Administration			
	Hospital		2	33
	Other			1
	Undeclared/Undecided			3
	TOTAL	5	2	52
University of Florida, Gainesville	Advanced Nursing Clinical Practice			
	Medical-Surgical	6	7	76
	Gerontological	1		5
	Psychiatric/Mental Health	7	7	9
	Family/Community Health	3	1	26
	Women's Health	3	2	29
	Primary Health Care/Nurse Midwifery	2	9	4
	Child Health	6	7	12
	Other		5	13
	Nursing Service Administration			
	Hospital	2	1	15
	TOTAL	30	39	196

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Table 5 (continued)
Master's Degree Graduates
August 1983 - July 1984
Enrollments (Fall 1984), from Schools of Nursing in the South

	Program Major	Number Graduated 8/1/83 - 7/31/84	Total Enrollments Fall 1984 Full-time	Part-time
University of Miami, Miami	Advanced Nursing Clinical Practice			
	Medical-Surgical	4	24	11
	Gerontological	3	1	3
	Psychiatric/Mental Health	4		
	Community Health		3	3
	Nurse Midwifery	4	3	1
	Maternal-Child Health		2	6
	TOTAL	15	33	23
GEORGIA				
Emory University, Atlanta	Educational Administration			
	Professional Role	2	14	4
	Advanced Nursing Clinical Practice			
	Adult Health	12	21	11
	Gerontological/Mental Health	4	6	6
	Family/Clinical Nurse Specialist with Practitioner Skills	4	12	5
	Child Health	8	8	1
	Neonatal/Perinatal	6	17	4
	Occupational Health		4	
	Correctional Health	1	2	2
	Pediatric Oncology		2	
	Nursing Service Administration			
	Hospital	2	8	3
	Others			15
	TOTAL	37	84	51
Georgia State University, Atlanta	Advanced Nursing Clinical Practice			
	Adult	23	10	24
	Psychiatric/Mental Health	5	3	13
	Maternal-Child Health		4	13
	Primary Health Care-Family Nurse Practitioner		17	1
	TOTAL	28	34	51
Medical College of Georgia, Augusta	Advanced Nursing Clinical Practice			
	Medical-Surgical	17	14	6
	Psychiatric/Mental Health	6	3	4
	Community Health	4	3	4
	Maternal-Child Health	5	3	13
	Nursing Service Administration			
	Hospital	5	9	11
	TOTAL	37	32	38
Valdosta State College, Valdosta	Educational Administration			
	Curriculum Development		5	17
	Advanced Nursing Clinical Practice			
	Community Health		1	3
	TOTAL	8	8	20
KENTUCKY				
Bellarmine College, Louisville	Nursing Education			
	Nursing Administration			
	Clinical Specialization			
	TOTAL	8	1*	19*
Murray State University, Murray	Advanced Nursing Clinical Practice			
	Rural Nurse Clinician		13	7
	TOTAL	5	13	7
University of Kentucky, Lexington	Advanced Nursing Clinical Practice			
	Adult	25	17	16
	Gerontological	1		1
	Community Mental Health	7	5	1
	Family Nurse Practitioner	7	11	3
	Parent-Child	6	5	12
	Nurse Midwifery	5	12	
	TOTAL	51	50	33
University of Louisville, Louisville	Educational Administration			
	Professional Role	5	3	10
	Nursing Service Administration			
	Hospital	3	3	28
	TOTAL	8	6	41
LOUISIANA				
Louisiana State University Medical Center, New Orleans	Advanced Nursing Clinical Practice			
	Medical-Surgical	14	17	31
	Psychiatric/Mental Health	4	18	18
	Maternal-Child Health	13	16	10
	Nursing Service Administration			
	Hospital	7	13	12
	TOTAL	38	64	71

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Table 5 (continued)
Master's Degree Graduates
August 1983 - July 1984
Enrollments (Fall 1984), from Schools of Nursing in the South

	Program Major	Number Graduated 8/1/83 - 7/31/84	Total Enrollments Fall 1984 Full-time	Part-time
Northwestern State University, Shreveport	Educational Administration			
	Curriculum Development			
	Medical-Surgical Nursing	1	1	14
	Psychiatric/Mental Health	4		4
	Maternal-Child Health Nursing	3	1	10
	Other		3	4
	Advanced Nursing Clinical Practice			
	Medical-Surgical		1	5
	Psychiatric/Mental Health	4	1	2
	Community Health			3
	Family Health		11	2
	Maternal-Child Health	2	1	10
	Other		2	10
	Nursing Service Administration			
	Hospital	3		35
	Community	1		2
	Undeclared/Undecided			8
	TOTAL	18	31	109
MARYLAND				
Salisbury State College, Salisbury	Advanced Nursing Clinical Practice			
	Rural Health			1
	Nursing Service Administration			
	Rural Health			3
	Undeclared/Undecided		1	4
	TOTAL	0	1	8
University of Maryland, Baltimore	Educational Administration			
	Educational Executive Role	2	1	
	Curriculum Development			
	Medical-Surgical Nursing	6	3	27
	Psychiatric/Mental Health Nursing	1		2
	Pediatric Nursing	1		
	Community Health Nursing	1		
	Maternal-Child Health Nursing	2		3
	Trauma/Critical Care Nursing		2	
	Advanced Nursing Clinical Practice			
	Medical-Surgical	30	13	87
	Gerontological	2	6	13
	Psychiatric/Mental Health	13	9	31
	Community Health	9	3	15
	Pediatric	4	10	11
	Maternal-Child Health	4	6	15
	Primary Health Care -Adult	7	21	15
	Primary Health Care - Nurse Midwifery	6	8	4
	Primary Health Care - Women's Health		4	1
	Trauma/Critical Care	4	13	24
	Nursing Service Administration			
	Hospital	16	15	67
	Health Care Policy	2		7
	TOTAL	116	114	313
MISSISSIPPI				
Mississippi University for Women, Columbus	Advanced Nursing Clinical Practice			
	Primary Health Care - Family	9	11	7
	Primary Health Care - Gerontological		10	2
	TOTAL	9	21	9
University of Mississippi, Jackson	Teaching			
	Medical-Surgical Nursing	3	2	4
	Psychiatric/Mental Health Nursing			1
	Maternal-Child Health Nursing	1	1	
	Advanced Nursing Clinical Practice			
	Medical-Surgical			2
	Psychiatric/Mental Health			1
	Pediatric	1		4
	Maternal-Child	1	2	2
	Nursing Service Management			2
	TOTAL	5	5	16
University of Southern Mississippi, Hattiesburg	Advanced Nursing Clinical Practice			
	Psychiatric/Mental Health	12	3	11
	Community Health	8	7	1
	Nursing Service Administration			
	Hospital	11	6	25
	TOTAL	31	16	37
NORTH CAROLINA				
Duke University, Durham	Advanced Nursing Clinical Practice			
	Medical-Surgical	2		
	Oncology	2		
	TOTAL	4	0	0

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Table 5 (continued)
Master's Degree Graduates
August 1983 - July 1984
Enrollments (Fall 1984), from Schools of Nursing in the South

	Program Major	Number Graduated 8/1/83 - 7/31/84	Total Enrollments Fall 1984 Full-time	Part-time
East Carolina University, Greenville	Advanced Nursing Clinical Practice			
	Medical-Surgical	2	8	53
	Psychiatric/Mental Health	3	7	14
	Nurse Midwifery	3	7	10
	Undeclared/Undecided			1
	TOTAL	8	18	87
University of North Carolina, Chapel Hill	Advanced Nursing Clinical Practice			
	Medical Nursing	6	24	6
	Family Health	1		
	Maternal-Child Health		2	
	Primary Health Care - Family	15	32	8
	Psychiatric		2	
	TOTAL	22	60	14
University of North Carolina, Charlotte	Advanced Nursing Clinical Practice			
	Medical-Surgical		3	18
	Nurse Midwifery		1	14
	TOTAL	8	4	32
University of North Carolina, Greensboro	Educational Administration Curriculum Development			
	Medical-Surgical	13	15	15
	Psychiatric/Mental Health	1	4	4
	Maternal-Infant Child	6	6	6
	Nursing Service Administration			
	Hospital	12	12	15
	TOTAL	32	38	40
SOUTH CAROLINA				
Clemson University, Clemson	Advanced Nursing Clinical Practice			
	Family Health	9	11	33
	TOTAL	9	11	33
Medical University of South Carolina, Charleston	Advanced Nursing Clinical Practice			
	Medical-Surgical	3	6	5
	Nursing Service Administration			
	Hospital		7	6
	TOTAL	3	13	11
University of South Carolina, Columbia	Advanced Nursing Clinical Practice			
	Medical-Surgical	20	16	64
	Psychiatric/Mental Health	11	6	19
	Community Health	16	2	18
	Other			2
	Nursing Service Administration			
	Hospital	12	11	29
	Undeclared/Undecided		1	1
	TOTAL	59	36	133
TENNESSEE				
University of Tennessee, Knoxville	Advanced Nursing Clinical Practice			
	Medical-Surgical	12	29	48
	Maternal-Child Health	8	30	42
	Primary Health Care - Adult	16	38	14
	Associate Degree Nursing Faculty			32
	TOTAL	36	97	136
University of Tennessee, Center for Health Sciences, Memphis	Advanced Nursing Clinical Practice			
	Medical-Surgical	12	11	15
	Psychiatric/Mental Health	4	5	3
	Community and Family	3	20	6
	Pediatric	5	17	8
	TOTAL	24	53	31
TEXAS				
Corpus Christi State University, Corpus Christi	Educational Administration			1
	Curriculum Development			3
	Psychiatric/Mental Health Nursing			1
	Family Health Nursing			1
	Nurse Midwifery Nursing			3
	Advanced Nursing Clinical Practice			
	Medical-Surgical			3
	Primary Health Care - Adult			2
	Primary Health Care - Family			2
	Primary Health Care - Pediatric			2
	Nursing Services Administration			
	Hospital			4
	Community			3
	Undeclared/Undecided			10
	TOTAL	0	0	36

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Table 5 (continued)
Master's Degree Graduates
August 1983 - July 1984
Enrollments (Fall 1984), from Schools of Nursing in the South

	Program Major	Number Graduated 8/1/83 - 7/31/84	Total Enrollments Fall 1984 Full-time	Part-time
Texas Woman's University, Denton	Role Areas of Study: Administration, Clinical Specialization, Teaching			
	Community Health Nursing	13	11	
	Maternal-Child Nursing	23	13	
	Medical-Surgical Nursing	34	21	
	Psychiatric/Mental Health Nursing	17	8	
	Undeclared/Undecided		13	
	TOTAL	88	66	488.
University of Texas, Arlington	Advanced Nursing Clinical Practice			
	Adult	10	17	43
	Psychiatric/Mental Health	4	2	9
	Primary Health Care - Gerontological		4	10
	Primary Health Care - Family	8	13	20
	Primary Health Care - Pediatric		3	4
	Nursing Service Administration			
	Hospital	9	9	41
	TOTAL	31	48	138
University of Texas, Austin	Advanced Nursing Clinical Practice			
	Medical-Surgical	21	24	14
	Gerontological		2	1
	Psychiatric/Mental Health	8	5	9
	Community Health		5	1
	Maternal-Child Health	12	13	14
	Nursing Service Administration			
	Hospital	17	13	9
	TOTAL	58	61	47
University of Texas, El Paso	Advanced Nursing Clinical Practice			
	Medical-Surgical	11	4	10
	Gerontological		2	
	Psychiatric/Mental Health	12		8
	Maternal-Child Health	3	1	5
	Other		10	50
	TOTAL	26	17	73
University of Texas Health Sciences Center, Houston	Advanced Nursing Clinical Practice			
	Gerontological	2	2	5
	Critical Care	2	11	18
	Perinatal	3	7	20
	Emergency Care	5	6	20
	Oncology	3	3	13
	Nurse Anesthesia		6	3
	TOTAL	15	35	79
University of Texas Medical Branch, Galveston	Teacher in Nursing			
	Adult Health	7	3	6
	Pediatric		1	9
	Clinical Nurse Specialist			
	Adult Health	1	1	2
	Nursing Service Administration	7	5	18
	Nurse Practitioners		8	8
	TOTAL	15	18	43
	Note: It is possible to take double majors.			
West Texas State University, Canyon	Advanced Nursing Clinical Practice			
	Family Health	9	11	46
	TOTAL	9	11	46
VIRGINIA				
George Mason University, Fairfax	Advanced Nursing Clinical Practice			
	Gerontological		4	3
	Long Term Care	8	15	10
	Nursing Service Administration			
	Hospital	26	25	27
	TOTAL	34	44	40
Hampton Institute, Hampton	Educational Administration			
	Curriculum Development			
	Medical-Surgical Nursing	2	2	12
	Psychiatric/Mental Health Nursing	4	2	2
	Community Health Nursing		1	4
	Advanced Nursing Clinical Practice			
	Primary Health Care - Adult		6	3
	Primary Health Care - Family		2	8
	Nursing Service Administration			
	Hospital	5	2	5
	Community	5	1	10
	Undeclared/Undecided		1	3
	TOTAL	16	17	47

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Table 5 (continued)
Master's Degree Graduates
August 1983 - July 1984
Enrollments (Fall 1984), from Schools of Nursing in the South

	Program Major	Number Graduated 8/1/83 - 7/31/84	Total Enrollments Fall 1984 Full-time	Part-time
Marymount College of Virginia, Arlington	Nursing Service Administration	13	7	38
	TOTAL	13	7	38
Medical College of Virginia/ Virginia Commonwealth University, Richmond	Educational Administration			
	Curriculum Development			
	Medical-Surgical Nursing	5	6	10
	Gerontological Nursing		3	1
	Psychiatric/Mental Health Nursing	1	2	1
	Community Health Nursing	2	1	5
	Pediatric Nursing	2		
	Maternal-Child Nursing	2	5	7
	Advanced Nursing Clinical Practice			
	Medical-Surgical	7	15	16
	Gerontological		5	4
	Psychiatric/Mental Health	5	9	11
	Pediatric		3	
	Maternal-Child Health		1	5
	Primary Health Care - Family	8	5	8
	Primary Health Care - Pediatric	1	6	6
	Primary Health Care - Women's Health	1	10	3
	Nursing Service Administration			
	Hospital	3	6	12
	TOTAL	37	77	87
Old Dominion University, Norfolk	Educational Administration			
	Curriculum Development			
	Family Health Nursing	1	7	5
	Primary Care - Adult Nursing	4	1	6
	Advanced Nursing Clinical Practice			
	Primary Health Care - Adult	1	4	6
	Primary Health Care - Family	4	6	2
	Nursing Service Administration			
	Community	3	6	7
	TOTAL	13	34	26
University of Virginia, Charlottesville	Advanced Nursing Clinical Practice			
	Medical-Surgical	33	16	17
	Psychiatric/Mental Health	18	19	6
	Pediatric	15	13	3
	Primary Health Care	18	14	4
	TOTAL	84	63	31

*Breakdown information was not provided.

Data obtained from SCCEN Survey of Schools, 1985.

Several programs or specialty areas are too new to have graduates or enrollees.

In those instances, the columns have been left blank.

No response was received from West Virginia.

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programs. Over four-fifths of nurses with master's degrees in nursing are employed in some aspect of nursing.

Doctoral Education in Nursing in the South

The South began the development of graduate nursing programs at the doctoral level in 1973. Slow but steady growth in the number of doctoral programs occurred for a decade; currently the South has 18 percent of the nation's doctoral nursing programs. Table 6 shows the years during which new programs were started in the South and in the nation as a whole.

Table 6

Number of Doctoral Programs in Nursing
United States and SREB States, 1973-1984

	1973	1974	1975	1979	1982	1984
United States	8	9	12	22	25	33
SREB States	1	2	3	4	5	6
Alabama	-	-	1	1	1	1
Florida	-	-	-	-	-	1
Maryland	-	-	-	1	1	1
Texas	1	2	2	2	2	2
Virginia	-	-	-	-	1	1

All of the doctoral programs in the South are in public universities. The programs at the University of Florida, which began in the fall of 1984, and at the University of Virginia, which began in 1982, had not yet graduated

classes at the time of the survey. The other five programs, which began in the 1970s, have functioned as regional programs through SREB's Academic Common Market.

Table 7 shows the total numbers of part-time and full-time enrollments and graduations for the doctoral programs of the South since 1980. Table 8 shows the doctoral programs of the South, their enrollments and graduations, and their areas of major focus.

Table 7

Enrollments and Graduations of Doctoral Programs in Nursing in the South, 1980-1984

	1980-81	1981-82	1982-83	1983-84	1984-85
Enrollments					
Full-time	120	116	137	183	215*
Part-time	91	93	126	243	236*
Graduations	14	14	41	55*	-

*Figures obtained from SCCEN survey.

Source: Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing, 1980-1984. Washington, D.C.: American Association of Colleges of Nursing, 1984.

Table 8

Doctoral Nursing Programs
Graduations and Enrollments, SREB States

	Graduations August 1, 1983-July 31, 1984	Enrollments Fall Term, 1984	
		Full-time	Part-time
University of Alabama at Birmingham			
Medical-Surgical Nursing	5	6	21
Maternal-Child Nursing	5	9	15
Community Mental Health Nursing	6	3	5
Administration-Nursing Service	-	3	3
	16	21	44
University of Florida*			
Research in Nursing		2	4
		2	4
University of Maryland			
Direct Nursing	1	11	16
Indirect Nursing	1	8	11
	2	19	27
University of Texas at Austin			
Medical-Surgical Nursing	10	19	24
Maternal-Child Nursing	7	24	8
Psychiatric-Mental Health Nursing	3	19	9
Administration-Nursing Education	8	26	22
Administration-Nursing Service	-	8	6
Research in Nursing	1	17	12
	29	113	81
Texas Woman's University			
Research in Nursing	8	44	80
	8	44	80
University of Virginia*			
Psychiatric-Mental Health Nursing		11	0
Administration-Nursing Service		5	0
		16	0
Totals	55	213	236

*The doctoral program at the University of Florida was established in fall 1984; the University of Virginia doctoral program began in 1982.

There has been a particularly large increase in the enrollment of part-time students in doctoral education; nationally, in 1983-84, 57 percent of the students in the South were enrolled on a part-time basis. This is the result of ongoing family and career commitments plus the decline in stipend support for doctoral students. Because of the low rates of graduations, it appears that many of the part-time enrollees take only one or two courses at a time so that their total program stretches over a number of years.

All but one of the six existing doctoral programs award the Ph.D. in Nursing degree; University of Alabama awards the D.S.N. degree.

The major source of funds for conducting these doctoral programs comes from the states and institutions, except for the newest program at the University of Florida, which reports 90 percent support from a federal grant (see Table 9).

Table 9

Sources of Funds, by Percentages, for Conducting Doctoral Program in Nursing

	Institution/ State	Federal	Tuition	Other
University of Alabama at Birmingham	63.3%	17.5%	17.4%	1.8%
University of Florida	10.0	90.0		
University of Maryland	71.0		29.0	
University of Texas at Austin	100.0			
Texas Woman's University	100.0			
University of Virginia	95.0		5.0	

As shown in Table 10, the existing programs have the capacity to admit more doctoral students.

Table 10

Enrollments in Doctoral Programs, Fall 1984

	Full-time		Part-time	
	Actual	Capacity	Actual	Capacity
University of Alabama at Birmingham	21	45	44	50
University of Florida	2	6	4	-
University of Maryland	19	22	27	30
University of Texas at Austin	113	120	81	100
Texas Woman's University	44	*	80	*
University of Virginia	16	18	0	12
Totals	215		236	

*Texas Woman's University reports, "Do not have maximum."

Only one of the schools, the University of Florida, which is still in the developmental stage, maintains a waiting list of qualified applicants. And, only the University of Maryland had applicants to the doctoral program that were not admitted for the fall term 1984--of the eight applicants who were not admitted, three chose other schools.

None of the existing doctoral programs plan to decrease enrollment in the future. Increased enrollments are planned at the University of Florida; at Texas Woman's University, which can increase enrollment by 50 full-time students in Houston; and at the University of Alabama at Birmingham, which notes, "With existing resources we can accommodate 70 FTE (45 full-time and 50

part-time). If resources were increased slightly, we could enroll 100 more students (50 full-time and 50 part-time)." The other programs plan to maintain enrollments.

The directors of the programs report that a significant portion of their doctoral enrollment has come from other states of the South. This is consistent with the recommendation of SREB's 1971 report, Graduate Education in Nursing in the South, that there be cooperative regional planning for the development of a few doctoral education programs in nursing and also for a few strong centers of research in the field of nursing. From information received from the higher education agency in Texas, 30 percent of the students enrolled in doctoral nursing programs are from other states of the region (see Table 11).

Table 11

In-State and Out-of-State Students
Admitted to Doctoral Programs

	Percent In-state	Percent Out-of-state
University of Alabama at Birmingham	39%	61%
University of Florida	95	5
University of Maryland	37	63
University of Texas at Austin	50	50
Texas Woman's University	*	*
University of Virginia	24	76

*The School of Nursing at Texas Woman's University does not maintain these records.

The schools report that the majority of out-of-state doctoral students return to their home states within the first year after graduation. Only the University of Alabama at Birmingham reported that the percent returning home is less than the percent that remains in Alabama.

The vast majority of the schools' doctoral graduates are employed in nursing education. Table 12 lists the schools' estimated percentages of doctoral graduates employed in various settings.

Table 12

Doctoral Graduates Employed in Various Settings

	Percent in Nursing Education	Percent in Health Service	Percent in Other**
University of Alabama at Birmingham	88%	7%	5%
University of Florida*	-	-	-
University of Maryland	83	17	-
Texas University at Austin	95	5	-
Texas Woman's University (not reported)			
University of Virginia* (anticipated)	80	20	-

*The University of Florida and the University of Virginia had no graduates at the time of survey.
**Other includes nurse consultant with government or schools of nursing, or nurse researcher with a hospital.

ISSUES REGARDING DOCTORAL NURSING EDUCATION

At the national level there is great concern among professional nurses and nurse educators about the need for more doctorally prepared nurses, especially those needed to staff collegiate nursing programs and to conduct research. Although the number has been steadily growing, there is still a very small pool of available nurses with doctorates in nursing to become faculty members of collegiate nursing education programs, particularly at the graduate level. Consequently, many of the faculty positions continue to be filled with nurses who have doctorates in fields other than nursing or with nurses who have not yet completed their doctorates. The number of currently employed nurse faculty members with doctorates in nursing is only 183 in all the schools of nursing in the South (see Table 13).

At the national level in 1980, there were 4,100 RNs with doctoral degrees, of whom almost 3,000 (72 percent) were employed in nursing; less than 1,000 of these doctorates were in nursing (Institute of Medicine, 1983). By 1985 the estimate of doctorally prepared persons employed in nursing was 3,650. While a growing number of doctorally prepared nurses are employed as program researchers and administrators by large health care organizations (for example, teaching hospitals and health maintenance organizations) and by the military services, an overwhelming majority of them are in schools of nursing where they have a combination of administrative, teaching, and research responsibilities. Many are in executive positions in schools of nursing. Most academicians agree that all of the faculty persons in graduate school programs should have doctorates.

Articles have appeared in the literature documenting the need and urging

Table 13

Type of Doctoral Degrees Held by Nurse Faculty In Undergraduate and Graduate Nursing Programs in the South

	Ph.D. in Nursing		Ph.D. Non-Nursing		Ed.D.		D.N.S., D.S.N.		Other	
	Undergrad	Grad	Undergrad	Grad	Undergrad	Grad	Undergrad	Grad	Undergrad	Grad
Alabama	0	4	6	12	18	19	1	21	0	0
Arkansas	1	7	3	6	2	1	1	1	0	0
Florida	1	4	19	33	27	10	1	2	0	0
Georgia	2	5	4	38	6	10	1	3	0	2
Kentucky	1	2	2	4	3	6	4	4	0	0
Louisiana	1	4	5	6	8	9	0	1	0	0
Maryland	2	5	9	37	5	7	3	4	0	7
Mississippi	2	4	1	7	2	15	0	3	0	0
North Carolina	1	5	4	27	8	25	1	0	0	5
South Carolina	0	11	2	27	0	11	0	3	0	2
Tennessee	1	7	3	10	9	6	3	1	0	0
Texas	14	22	18	62	18	34	2	3	0	7
Virginia	0	6	3	34	11	20	2	6	0	1
West Virginia	0	*	2	*	2	*	0	*	0	*
Sub-Totals	26	86	81	303	119	173**	19	52	0	24
Totals	112		384		292		71		24	

*Graduate school in West Virginia did not respond to question.
**One graduate school reported a faculty person with an Ed.D. who was a graduate of Columbia University's Ed.D. program in nursing.

action to increase the numbers of doctoral programs to prepare nurses to meet it (Grace, "Doctoral Education," 1978; Institute of Medicine, 1983). A particular point of emphasis in the literature is the need for nurses who are qualified to do high quality nursing research. Because there have been so few nurses prepared to do research, relatively little nursing research has been done--and much of that has been done by persons whose doctorates were in other fields, such as the biological and social sciences.

There are many approaches to the assessment of need for doctorally prepared nurses. At the national level, virtually all of the projections of need far exceed the capacity of the nation's educational program to fulfill them. For example, projections using the Western Interstate Commission for Higher Education (WICHE) model show a need for 13,490 doctoral nurses by 1990 (Institute of Medicine, 1983). While many persons believe this projection model yields figures on the high side, the total of 13,490 is more than double the number that can realistically be available at that time. A study by the Institute of Medicine estimates that by 1990 there will be 3,000 nurses with doctorates in nursing plus 2,800 nurses with doctorates in other fields--a total of 5,800 doctorally prepared nurses. The 1983 report of the study stated:

> In summary, the scarcity of nurse faculty with adequate academic credentials in the nation's more than 1,000 academic nursing education programs will not readily be alleviated. A long period appears to be needed in which universities offering nursing doctorates can build their capacity to produce greater numbers of high quality graduates likely to devote their careers to teaching and research (Institute of Medicine, p. 137).

The 1984 conference sponsored by the Division of Nursing and the American Association of Colleges of Nursing reported that there are currently 34 doctoral nursing education programs in the nation, but that there are likely

to be 73 programs in operation by 1988 if the current plans of nursing schools result in affirmative decisions to proceed. Such expansion will severely strain the available pool of doctoral nurses for faculty.

Nationally there were only 139 graduates from doctoral programs in nursing in 1983; about 30 percent were in the South. A national total of 400 graduates per year is not expected until 1990. This is far short of the estimated need. These figures show the shortages of nurses with doctoral degrees in all fields, particularly in nursing, and document the need for more doctorally prepared nurses. They also dramatize another problem facing schools as they plan new doctoral programs--the shortages of qualified doctoral faculty to staff the programs.

The South's Plans for Doctoral Education in Nursing

The South has 31 percent of the nation's population, but only 18 percent of the nation's enrollments in doctoral nursing education programs. This contrasts with 35 percent of the nation's enrollments in associate degree programs, 32 percent in baccalaureate programs, and 32 percent in master's programs. The enrollment percentages are identical to the region's share of nursing programs at each of the four levels.

In the South, there has been a substantial amount of faculty exploration regarding the development of new doctoral programs by several of the schools of nursing. The local need for doctoral programs has been studied extensively by some schools, while others have relied on regional or national studies by groups such as the Virginia/Carolinas Consortium (1979), the Institute of Medicine, the National League for Nursing, and the American Nurses' Association. In most of the nursing school studies of need, surveys have been sent to schools of nursing in a circumscribed area (for example, a state and its

adjoining states) to seek their judgments about the number of doctorally prepared nurses needed and the number of their faculty persons who are likely to seek doctoral education. In some cases, the planning of the doctoral programs seems to have been conducted by the faculties of individual schools with little collaboration with other schools of nursing in the state or region. In at least one state (Georgia), planning is being conducted jointly by two schools to assure that each offers the specialties that it is best equipped to provide and to avoid duplication.

Perhaps the most comprehensive study of the need in the South for doctoral faculty was conducted in 1979 by L. Claire Parsons, Barbara Brodie, and Ernest Steidle of the University of Virginia School of Nursing for the Virginia/Carolinas Consortium for Nursing Education. While much of the data focused on the Virginia/Carolinas area, the study covered the entire SREB region. Clearly, the greatest need for doctorates then, as now, was for nurses to serve as teaching faculty or in administrative positions in schools of nursing. At that time only 15.4 percent of the nursing faculty of the graduate nursing education programs that were surveyed held doctoral degrees.

The Virginia/Carolinas study also surveyed faculty persons to learn their plans and wishes for doctoral education. The findings were that 65 percent of the faculty persons who did not have doctorates planned to obtain them, and that their first choice for the focus of doctoral education was advanced clinical practice, followed by research and theory development. Over half of the respondents indicated that they would be able to pursue doctoral education on a part-time basis only. A number of nurses in top nursing positions in hospitals and health care agencies expressed the desire to obtain doctorates in order to better prepare themselves for their administrative duties.

Based on past experience, a considerable number of current faculty persons

who plan to obtain a doctorate will do so in another field, such as education, health administration, the social sciences, or the biological sciences, unless there are accessible programs where they can obtain their doctorates in nursing.

Current Plans for Doctoral Nursing Education

The results of the SCCEN survey of master's programs show that at least 35 schools of nursing have explored doctoral programs, and 22 of these were considering the possibility or were planning to begin new doctoral programs. (Not all schools answered all the questions on the survey.) At least one school of nursing that does not presently have a master's level program (Texas Tech University) is also planning a doctoral program. These programs were in various stages of faculty and institutional discussion and institutional approval; several were or soon will be before state higher education agencies for review (see Table 14). Still other schools reported that doctoral programs are in their long-range plans, but at some indefinite time in the future.

Target dates for entering students to the doctoral programs were reported by 16 schools (see Table 15). Almost all of the schools propose to offer the Ph.D.; only three schools propose the D.N.S. Most of the schools plan postmaster's doctoral programs that will require three years of full-time study to complete. One school proposes a pre-master's program. However, the length of the proposed programs ranges from two to five years (see Table 16). These programs expect their graduates to be employed mainly in schools of nursing, but also in teaching hospitals and other health agencies.

Most of the schools propose to conduct rather modest sized doctoral programs (see Table 17). The 17 schools that supplied additional data plan to start with an average enrollment of less than 7 full-time students; the numbers ranged from a low of 2 to a high of 15. Only 7 of the schools plan to admit part-time students initially; these schools expect to start with an average of 8 part-time students.

Table 14

Status of Planning for Doctoral Programs in the South as Reported on SCCEN Survey of Master's Programs

Faculty has agreed not to propose a doctoral program--13 schools

Troy State University (Alabama)
University of Alabama-Huntsville
University of Southern Alabama
University of Central Arkansas
Barry University (Florida)
Valdosta State College (Georgia)
University of Louisville (Kentucky)
University of North Carolina-Charlotte
University of North Carolina-Greenville
University of Texas-El Paso
University of Texas-Galveston
Marymount College of Virginia
Old Dominion University (Virginia)

Faculty are considering a doctoral program--3 schools

University of Arkansas Medical Center
School "A"
School "B"

Faculty have agreed to propose a doctoral program--2 schools

Corpus Christi State University (Texas)
School "C"

Institution is considering a proposed doctoral program--1 school

School "D"

Institution has approved a proposed doctoral program--6 schools

University of Kentucky
University of South Carolina at Columbia
University of Texas-Arlington
Hampton Institute (Virginia)
School "E"
School "F"

State higher education agency is considering a proposed doctoral program--8 schools

Georgia State University
Louisiana State University Medical Center
Northwestern State University (Louisiana)
Clemson University (South Carolina)
Virginia Commonwealth University/Medical College of Virginia
George Mason University (Virginia)
School "G"
School "H"

State higher education agency has approved a proposed doctoral program--1 school

Medical College of Georgia

Private university with approved doctoral program--1 school

University of Miami (Florida)

Schools that did not answer this question or reported that they were "a part of regional planning"--8 schools

Bellarmine College (Kentucky)
Murray State University (Kentucky)
Salisbury State College (Maryland)
University of Mississippi
University of Southern Mississippi
Mississippi University for Women
West Texas State University
School "I"

Note: Schools identified by letters preferred not to be identified by name.

Table 15

Target Dates for Admitting Students to Proposed Doctoral Programs in the South

Year	Number of Programs	Schools
1985	4	University of Miami (Florida) Medical College of Georgia Louisiana State University Medical Center Northwestern State University (Louisiana)
1986	6	Georgia State University University of Kentucky at Lexington University of South Carolina at Columbia George Mason University (Virginia) Two schools that prefer not to be identified
1987	2	Clemson University (South Carolina) University of Texas at Arlington
1988	2	Virginia Commonwealth University/ Medical College of Virginia One school that prefers not to be identified
1989	1	University of Arkansas Medical Center
Other	1	School did not state the expected year, or indicated that it would be after 1989

Table 16

Proposed Years to Complete Doctoral Degree in Projected Programs

Proposed Years to Complete Degree	Number of Schools
2	1
3	12
4	3
4.5	1
5	1

Table 17

Number of Students Expected to Enroll in Proposed Doctoral Programs

	Expected Admissions			
	Initially		Subsequent Yearly Admissions	
	Full-time	Part-time	Full-time	Part-time
University of Miami	8		4	
Georgia State University	6	6	7	8
Medical College of Georgia	6	6	8	7
University of Kentucky	10		6	
Louisiana State University Medical Center	5		5	
Northwestern State University (Louisiana)	5		5	
University of South Carolina at Columbia	8		4	
Clemson University (South Carolina)	5		5	
University of Texas at Arlington	5	10	20	20
Virginia Commonwealth University/ Medical College of Virginia	15		15	
Hampton Institute (Virginia)	10	15	5	10
George Mason University (Virginia)	5	5	7	18
*Other				
School A	4	6	8	12
School B	8		6	2
School C	2		3	
School D	10	10	25	20
School E	5	—	7	—
Totals	117	58	140	97

*Other represents five institutions that preferred not be be identified by name in this report.

These 17 schools expect to slightly increase the number of full-time admissions per year after the program gets underway; however, the average yearly admissions are still expected to reach only eight per year.

The major focus or research areas in the proposed doctoral programs vary. Table 18 shows the number of schools planning to focus in each area (most schools plan more than one focus or research area).

Table 18

Major Focus or Research Area in Projected Doctoral Nursing Programs in the South

	Number of Schools
Medical-Surgical Nursing	2
Maternal-Child Nursing	4
Psychiatric or Mental Health Nursing	3
Public Health	1
Nursing Service Administration	7
Nursing Education Administration	4
Curriculum Development	2
Teaching of Nursing	2
Other	13
Adult-2, Gerontology-1, Clinical Nursing Research-1, Psychological Stress Associated with Aging-1, Health Promotion/Disease Prevention-1, Rural-1, Nursing Science Research-1, Nursing Research and Theory Development-1, Clinical Nursing-1, Gerontics-1, Family and Primary Care-1, Clinical Science-1	

The schools expect to obtain funding for planning and initiation of the doctoral programs from a variety of sources. Four schools have already obtained federal funding for this purpose, and state that these federal funds

will cover up to 50 percent of planning costs. Over half of the schools are looking to the institution or state for the bulk of planning costs. Nine schools plan to request federal funds to cover 30 to 85 percent of the planning costs.

Funding for conducting the programs after the planned enrollment is reached is expected to come somewhat less often from federal sources, although eight schools say they will request federal funding. The schools expect their institutions and states to supply from 50 to 100 percent of the funding. Tuition is expected to supply from 5 to 50 percent of the funding for six of the schools.

Findings of Surveys of Needs and Demands

The matter of need and demand for doctoral preparation in nursing is difficult to assess. It has two dimensions: 1) the need and demand of the marketplace for doctorally prepared nurses, and 2) the need and demand of nurses for doctoral education in nursing. The need is the number that experts judge to be required; the demand is the number who are actually employed or enrolled. The SCCEN survey asked for judgments about the numbers of staff nurses who would enroll in doctoral education in the next five years.

Need and Demand for Doctorally Prepared Nurses

Most of the doctorally prepared nurse faculty in college-based nursing programs in the region are employed in master's or doctoral programs, as is to be expected (see Table 19).

The schools report that in a five-year period, 1984 through 1989, a total of 1,077 additional doctorally prepared nurse faculty persons are needed. The greatest need is in the schools that offer master's programs. Baccalaureate programs also claim a need for doctorally prepared faculty. The associate

Table 19

Academic Qualifications of Faculty of Schools of Nursing in SREB States, from SCCEN Survey, 1985

School by Highest Degree Offered	Doctoral		Master's		Baccalaureate or Less		Total
	Number	Percent	Number	Percent	Number	Percent	Number
Associate Degree (N = 217)	89	4%	1,838	73%	582	23%	2,518
Baccalaureate (N = 81)	158	15	849	80	57	5	1,064
Master's (N = 42)	430	27	1,140	72	15	1	1,585
Doctoral (N = 6)	177	37	303	63	0	0	480
Totals (N = 346)	854	15	4,130	73	654	12	5,647

degree programs' greatest need is for additional master's prepared faculty, although they also report needing doctorally prepared nurses (see Table 20).

The schools estimate that they would actually employ fewer faculty than they consider are needed. The number of doctorally prepared nurse faculty they would actually employ, if available, in the same five-year period is 827 (see Table 21).

The graduate schools of nursing are seeking primarily faculty persons who possess the Ph.D. in Nursing or the D.N.S. (see Table 22).

Table 20

Nurse Faculty Considered Needed in
Schools of Nursing in the South (1984 through 1989)

	Associate Degree*		Baccalaureate**		Master's***		Doctoral****		Total	
	Doctoral	Master's	Doctoral	Master's	Doctoral	Master's	Doctoral	Master's	Doctoral	Master's
Alabama	9	43	49	10	12	7	18	0	84	60
Arkansas	2	57	6	4	2	2	-	-	10	63
Florida	22	61	43	36	22	5	-	-	87	102
Georgia	27	72	45	11	53	1	-	-	125	84
Kentucky	5	49	9	0	14	10	-	-	28	59
Louisiana	7	23	50	45	25	0	-	-	82	68
Maryland	2	35	10	4	3	3	12	24	27	66
Mississippi	16	45	11	17	26	53	-	-	53	115
North Carolina	8	68	26	22	40	3	-	-	74	93
South Carolina	10	17	-	-	107	30	-	-	117	47
Tennessee	8	37	40	19	31	0	-	-	79	56
Texas	15	85	71	32	56	16	19	0	161	133
Virginia	8	27	16	1	90	2	19	0	133	30
West Virginia	8	34	9	32	NR	NR	-	-	17	66
Totals	147	653	381	233	481	132	68	24	1,077	1,042

*Associate degree data are from schools with associate degree as the highest degree in nursing.
**Baccalaureate data includes schools with baccalaureate as the highest degree, but also have associate degree programs.
***Master's data include schools with master's as the highest degree, but also have baccalaureate programs.
****Doctoral data include six schools that also offer master's and baccalaureate programs in nursing.

Table 21

Additional Nurse Faculty That Schools of Nursing Would Actually Employ if Available (1984 through 1989)

	Associate Degree*		Baccalaureate**		Master's***		Doctoral****		Total	
	Doctoral	Master's	Doctoral	Master's	Doctoral	Master's	Doctoral	Master's	Doctoral	Master's
Alabama	2	91	11	11	9	11	18	0	40	113
Arkansas	2	21	4	4	1	2	-	-	7	27
Florida	19	44	25	22	2	3	4	4	50	73
Georgia	20	32	41	11	41	1	-	-	102	44
Kentucky	7	57	1	0	10	3	-	-	18	60
Louisiana	5	18	37	37	11	0	-	-	53	55
Maryland	0	31	11	6	3	3	0	0	14	40
Mississippi	16	40	11	7	25	47	-	-	52	94
North Carolina	5	52	12	11	26	0	-	-	43	63
South Carolina	8	16	-	-	103	25	-	-	111	41
Tennessee	3	24	25	15	31	2	-	-	59	41
Texas	15	61	69	22	51	16	21	0	156	99
Virginia	8	27	17	0	67	1	9	0	101	28
West Virginia	16	28	5	26	NR	NR	-	-	21	54
Totals	126	542	269	172	380	114	52	4	827	832

*Associate degree data are from schools with this as the highest degree in nursing.
**Baccalaureate data includes schools with baccalaureate as the highest degree, but also have associate degree programs.
***Master's data include schools with master's as the highest degree, but also have baccalaureate programs.
****Doctoral data include six schools that also offer master's and baccalaureate programs in nursing.

Table 22

Type of Doctoral Degree Desired by Graduate Schools of Nursing in the South Seeking Additional Faculty

	Number of Schools That Responded	Ph.D. Nursing	Ph.D. Non-Nursing	Ed.D.	D.N.S., D.S.N.
Alabama	4	3	1	1	5
Arkansas	3	2	1	1	2
Florida	2	3	3	1	1
Georgia	4	4	3	2	3
Kentucky	4	4	1	0	4
Louisiana	2	2	0	0	2
Maryland	2	2	2	2	2
Mississippi	3	3	1	1	1
North Carolina	5	4	3	2	3
South Carolina	3	3	0	0	3
Tennessee	2	2	0	0	1
Texas	8	7	4	2	5
Virginia	6	6	1	2	4
West Virginia	*	—	—	—	—
Totals	48	45	20	14	36

*Graduate school in West Virginia did not respond.

Hospitals and other health agencies are increasingly employing nurses with advanced preparation, and it is worth noting here that the 216 hospitals responding to the survey perceive the future role of doctorally prepared nurses mainly in administration, with education, research, and patient care indicated less frequently; only 17 hospitals indicated they saw no role. A total of 74 doctorally prepared nurses are currently employed in the hospitals. The hospitals consider that they will need, and employ, 280 doctorally prepared nurses in the next five years. The degree the hospitals will seek in these

additional nurses is most commonly the Ph.D. in Nursing, with the D.N.S. next most common. The number of nurses currently employed in hospitals who are working toward a doctoral degree is 124; according to the hospitals' respondents, 89 of these nurses are enrolled in non-nursing doctoral programs, but is is believed that 76 of them would have enrolled in a nursing doctorate had it been equally accessible. A total of 413 hospital nurses are expected to enroll in doctoral programs in the next five years, the majority in Ph.D. in Nursing programs.

The seven state health agencies responding to the SCCEN survey predict a role for doctoral nurses in their agencies that is similar to the hospitals, that is, the main role is administration, followed closely by research; two states named a consultant role. One state agency could not foresee doctoral nurses employed in that agency. These agencies have 20 nurse employees currently working toward doctoral degrees; they expect that 34 will enroll in doctoral programs during the next five years. They estimate a need for 18 additional employees holding a Ph.D. in Nursing, and would actually employ 14 if available.

Need and Demand for Doctoral Education in Nursing

The needs and demands of nurses for doctoral education were also studied. Currently, 874 nurse faculty are working toward doctoral degrees and 388 are working toward master's degrees in the schools surveyed (see Table 23).

The type of doctoral degree being pursued by faculty in the various types of programs differs somewhat: associate degree faculty are most commonly enrolled in Ed.D. programs, while the Ph.D. not in nursing is the most common among faculty teaching in baccalaureate and higher degree programs (see Tables 24, 25, 26, 27).

Table 23

Summary of Number of Nurse Faculty
Currently Working Toward Advanced Degrees by State,
All Levels of Nursing Schools

	Ph.D. in Nursing	Ph.D. Non-Nursing	Ed.D.	D.N.S., D.S.N.	Master's in Nursing	Master's Non-Nursing
Alabama	8	14	15	43	27	0
Arkansas	6	1	5	0	20	2
Florida	19	25	20	1	55	8
Georgia	9	34	21	3	28	0
Kentucky	4	4	5	9	30	2
Louisiana	13	9	12	3	15	0
Maryland	11	54	11	8	11	4
Mississippi	9	27	18	1	8	0
North Carolina	12	39	19	*	42	12
South Carolina	4	15	15	1	17	1
Tennessee	9	17	10	0	34	3
Texas	93	88	58	2	22	2
Virginia	6	28	17	1	20	0
West Virginia	4	2	10	1	20	5
Sub-Totals	207	357	236	74	349	39

*One school in North Carolina reported a faculty member who is working toward a D.P.H. (Doctor of Public Health).

Note: Total enrollment in doctoral programs in nursing is 281.
Total enrollment in other doctorates is 593.

Table 24

Number of Nurse Faculty Currently Working Toward Advanced Degrees, Schools of Nursing in the South Offering Associate Degree as the Highest Degree

	Ph.D. in Nursing	Ph.D. Non-Nursing	Ed.D.	D.N.S., D.S.N.	Master's in Nursing	Master's Non-Nursing
Alabama	0	1	2	3	23	0
Arkansas	1	0	2	0	12	2
Florida	10	5	9	0	50	7
Georgia	2	8	5	2	26	0
Kentucky	0	2	1	1	25	2
Louisiana	1	0	0	1	6	0
Maryland	3	3	11	1	8	4
Mississippi	2	25	4	0	7	0
North Carolina	2	1	3	0	37	12
South Carolina	2	1	13	0	17	1
Tennessee	2	1	2	0	28	0
Texas	32	17	32	1	20	1
Virginia	0	3	11	0	19	0
West Virginia	0	1	7	1	16	5
Sub-Totals	57	68	102	10	294	34
Totals		237			328	

Note: Total enrollment in doctoral programs in nursing is 67.
Total enrollment in other doctorates is 170.

Table 25

Number of Nurse Faculty Currently Working Toward Advanced Degrees, Schools of Nursing in the South Offering Baccalaureate as the Highest Degree

	Ph.D. in Nursing	Ph.D. Non-Nursing	Ed.D.	D.N.S., D.S.N.	Master's in Nursing	Master's Non-Nursing
Alabama	7	6	7	22	3	0
Arkansas	0	1	2	0	4	0
Florida	6	6	5	0	5	1
Georgia	0	1	14	1	2	0
Kentucky	0	1	2	4	3	0
Louisiana	4	9	9	0	8	0
Maryland	0	9	0	1	1	0
Mississippi	4	2	5	0	1	0
North Carolina	3	1	7	0	4	0
South Carolina	-	-	-	-	-	-
Tennessee	4	7	6	0	6	3
Texas	40	24	8	0	2	1
Virginia	1	7	3	0	1	0
West Virginia	4	1	3	0	4	0
Sub-Totals	73	75	71	28	44	5
Totals		247			49	

Note: Total enrollment in doctoral programs in nursing is 101.
Total enrollment in other doctorates is 146.

Table 26

Number of Nurse Faculty Currently Working Toward Advanced Degrees, Schools of Nursing in the South Offering Master's as the Highest Degree

	Ph.D. in Nursing	Ph.D. Non-Nursing	Ed.D.	D.N.S., D.S.N.	Master's in Nursing	Master's Non-Nursing
Alabama	1	5	5	1	1	0
Arkansas	5	0	1	0	4	0
Florida	1	6	6	1	0	0
Georgia	7	25	2	0	0	0
Kentucky	4	1	2	4	2	0
Louisiana	8	0	3	2	1	0
Maryland	1	3	0	0	2	0
Mississippi	3	0	9	1	0	0
North Carolina	7	37	9	*	1	0
South Carolina	2	14	2	1	0	0
Tennessee	3	9	2	0	0	0
Texas	16	32	18	1	0	0
Virginia	1	17	3	1	0	0
West Virginia**	—	—	—	—	—	–
Sub-Totals	59	149	62	13	11	0
Totals		283			11	

*One school in North Carolina reported a faculty member who is working toward a D.P.H. degree.
**No report was received from West Virginia.

Note: Total enrollment in doctoral programs in nursing is 72.
Total enrollment in other doctorates is 211.

Table 27

Number of Nurse Faculty Currently Working Toward Doctoral Degrees, Schools of Nursing in the South with Doctorate as the Highest Degree

	Ph.D. in Nursing	Ph.D. Non-Nursing	Ed.D.	D.N.S., D.S.N.
University of Alabama	0	2	1	17
University of Florida	2	8	0	0
University of Maryland	7	39	0	6
University of Texas at Austin	2	5	0	0
Texas Woman's University	3	10	0	0
University of Virginia	4	1	10	0
Sub-Totals	18	65	11	23
Totals		117		

Note: Total enrollment in doctoral programs in nursing is 41.
Total enrollment in other doctorates is 76.

The number of nurse faculty members enrolled in non-nursing doctorates is nearly double the number enrolled in nursing doctorates. However, in the opinion of the schools' directors, nearly half of the faculty currently enrolled in non-nursing doctorates would have enrolled in nursing doctorates if such programs had been equally accessible. The total expected enrollment in doctoral education by nurse faculty members from all types of programs is 1,115 (see Table 28).

Increased Accessibility for Part-time Study

A reality that must be faced by doctoral programs is the increasing number of students who enroll on a part-time basis. While part-time arrangements are not the

Table 28

Choices and Expectations for Doctoral Education Among Nurse Faculty from Schools of Nursing in the South

	Would Have Selected Nursing Doctoral Program if Available				Expected Enrollment in Doctoral Education Within Next 5 Years			
	Academic Level of Program of Employment				Academic Level of Program of Employment			
	ADN	BSN	MS	Doctoral	ADN	BSN	MS	Doctoral
Alabama	8	5	2	0	35	31	18	11
Arkansas	1	2	1	-	5	5	10	-
Florida	28	12	12	NR	56	34	14	NR
Georgia	16	10	26	-	50	24	33	-
Kentucky	6	3	3	-	21	13	25	-
Louisiana	0	13	3	-	14	55	30	-
Maryland	3	0	2	5	25	5	2	33
Mississippi	16	5	14	-	37	8	17	-
North Carolina	14	8	25	-	23	18	31	-
South Carolina	14	-	16	-	25	-	30	-
Tennessee	4	8	11	-	18	27	15	-
Texas	30	20	24	-	101	32	36	37
Virginia	12	9	18	2	17	13	33	30
West Virginia	10	4	-	0	8	10	-	-
Sub-Totals	162	99	157	7	435	275	294	111
Totals	425				1,115			

ideal pattern for doctoral education, the reality is that over half of the potential candidates for doctoral education in nursing cannot afford to take full-time doctoral work. They must be able to continue their employment while they pursue their studies on a part-time basis. The reduction in federal scholarships and loans will aggravate this problem. It will be helpful if doctoral candidates are able to do a major part of their doctoral work close to their employment stations, but this will not reduce the overall need for part-time arrangements.

There are several variations in part-time study (for example, allowing enrollment in a limited number of regular course offerings, providing evening classes, or weekend and summer courses). These variations require extensive planning and accommodation by both faculty and students, but they make it more feasible for many candidates to pursue their doctorates. Following are some patterns that existing doctoral programs in the South use to increase accessibility.

University of Alabama at Birmingham	15 percent of courses are offered in the evening. An occasional course is scheduled to meet all day Friday and Saturday. Mini-courses (1 or 2 weeks of consecutive days of classes) are offered, and scheduling of most classes is one day/week.
University of Florida	Program is new and options will be developed.
University of Maryland	Current scheduling of courses takes into account the needs of part-time and commuting students.
University of Texas at Austin	A "summers only" program is offered for the doctoral program.
Texas Woman's University	Students may attend for three successive summers and one full year. Weekend classes are offered when requested by students.
University of Virginia	Classes held on Monday through Wednesday to allow 4 free days without classes to work or to make commuting easier.

Another approach to increase the accessibility for doctoral candidates is for the nursing schools to develop outreach programs that can be extended to the major population centers. Faculty may travel to other cities to teach certain courses, or arrangements can be made for students to complete certain courses at universities near their homes and then transfer their credits to the school which will award the doctorate. This assumes that there will be enough

Table 28

Choices and Expectations for Doctoral Education Among Nurse Faculty from Schools of Nursing in the South

	Would Have Selected Nursing Doctoral Program if Available				Expected Enrollment in Doctoral Education Within Next 5 Years			
	Academic Level of Program of Employment				Academic Level of Program of Employment			
	ADN	BSN	MS	Doctoral	ADN	BSN	MS	Doctoral
Alabama	8	5	2	0	35	31	18	11
Arkansas	1	2	1	-	5	5	10	-
Florida	28	12	12	NR	56	34	14	NR
Georgia	16	10	26	-	50	24	33	-
Kentucky	6	3	3	-	21	13	25	-
Louisiana	0	13	3	-	14	55	30	-
Maryland	3	0	2	5	25	5	2	33
Mississippi	16	5	14	-	37	8	17	-
North Carolina	14	8	25	-	23	18	31	-
South Carolina	14	-	16	-	25	-	30	-
Tennessee	4	8	11	-	18	27	15	-
Texas	30	20	24	-	101	32	36	37
Virginia	12	9	18	2	17	13	33	30
West Virginia	10	4	-	0	8	10	-	-
Sub-Totals	162	99	157	7	435	275	294	111
Totals	425				1,115			

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student demand to make such outreach programs feasible.

Closely related to outreach programs is the concept of consortial agreements. The purposes of consortial agreements vary according to the need, but they include planning (such as occurred through the Virginia/Carolinas Consortium), sharing of faculty expertise, sharing of specialty training, and sharing of research activities. Consortial arrangements are encouraged by state higher education agencies and state policymakers, and are likely to bring at least a part of the doctoral program closer to more potential students and to improve the quality of the education in some of the specialty areas.

Focus of Doctoral Education in Nursing and the Degree to be Awarded

One of the major programmatic issues to be considered in the development of additional doctoral programs in nursing is the focus of the education and the degree to be awarded. The main thrust of doctoral education is theory development and research. The focus of the Ph.D. is directed to theory development, hypothesis testing, advanced statistics, and research methodology in order to prepare researchers who will continue in research careers to expand the frontiers of knowledge in the field. Professional doctorates, such as the D.N.S., are more oriented to research of the clinical and programmatic applications of the field in order to prepare leaders for clinical practice, education, and administration of programs in the field.

There is some feeling in the nursing profession that the distinctions between the research degree (Ph.D.) and the professional degree (D.N.S.) in nursing are not really significant. A 1984 report found that there were few distinguishing characteristics in goals or curricula between the existing Ph.D. in Nursing and D.N.S. programs (Amos, 1985). There is agreement that the

profession needs expertise in both theory and practice, but there is less consensus about how these kinds of expertise should be featured in the doctoral education programs. The issue needs further consideration if the field is to avoid the perception that doctoral education in nursing is not relevant to the needs of the doctoral candidates.

It is not clear why so many of the proposed doctoral programs are planning to offer the Ph.D., except that the Ph.D. is more in demand for faculty status in graduate programs in universities. There is surely need for the preparation of some nurse scholars who would be educated in Ph.D. programs. However, state need assessments surveying the desires of nurses who plan to obtain their doctorates have found that most of these nurses plan to do teaching or administration rather than research. Thus, while they need to know research/evaluation skills to evaluate clinical and program outcomes, they also need to know teaching and administration. For these latter purposes, the D.N.S. would seem to be the more appropriate degree. In either case, the research and the preparation and defense of the dissertation require a great deal of time and effort on the part of both the individual student and the faculty. Faculty advisement for the dissertation is highly individualized and is conducted in one-to-one sessions.

To some extent the kind of degree offered and the kind of research commitment made by a doctoral program will depend on the setting of the program. Any doctoral program must be located in an institution that has essential research capacity. Some of the doctoral nursing programs will be located on campuses where the other doctoral programs are basic research programs featuring the Ph.D., while others will be located in academic health centers where the other schools offer professional degrees and there are more

opportunities for interprofessional collaboration. In the first case, the Ph.D. might be the more appropriate degree; in the latter situation, the D.N.S. might be more appropriate. The institutional policies of the university in which the program is located will play a role in deciding the appropriate degree.

The Research Commitment of Doctoral Programs

A major mission of doctoral programs is to teach research, but another mission is, or should be, for faculty to conduct and publish their own research. The research mission requires time and money, and it usually provides the basis for factors (publications, presentations at professional meetings) that determine decisions on promotion and tenure. Some research activities require little expense; others involve large funding for special equipment, technicians, and clinical facilities. All require time commitments from the faculty, however, and they require access to libraries that have research publications, computers, etc. Often graduate students are involved in the research activities of faculty persons.

Funding for major research projects has most commonly come from the federal government through competitive grant applications, but some has come from private foundations or research funds from public agencies. The 1984 veto of the National Institute of Nursing was a setback to the planned expansion of nursing research funds through the federal government. However, when the Center for Nursing Research was established in the Division of Nursing, $4.4 million was assigned to it for 1985 (Health Professions Report, 1985). State governments have not ordinarily made direct appropriations for nursing research. In the face of the anticipated increase in competition for limited research funds, there is need for further thinking about how the research mission of the proposed doctoral nursing education programs will be funded.

There are also issues regarding the productivity of research by doctoral programs. Research productivity is one of the primary reasons given for needing doctoral nursing programs. A 1978 joint report by the Conference Board of the Associated Research Council, American Council on Learned Societies, American Council on Education, the National Research Council, and the Social Science Research Council, entitled An Assessment of Research Doctoral Programs in the United States, showed that the more productive research programs in the biological sciences are those that have the largest mass of both faculty and students, presumably because there is more stimulation of research interest and motivation from the larger community of scholars. It might be assumed that more research will be produced by those programs that have higher faculty-student ratios because the faculty will then have more time to devote to research. It is also possible that the more productive programs are those which provide a wide range of specialists and subspecialists (for example, biologists, social scientists, statisticians, and epidemiologists) as well as nurses. One item that funding agencies look for is linkages to other academic departments of the university because it is believed that these strengthen both the research and teaching programs.

Some universities find that research productivity is greater if it is focused on one or two major program areas such as gerontological nursing. Often this kind of programmatic research is combined with that of other health professions schools in the academic health centers. Such interdisciplinary programs are often better able to attract substantial funding in addition to providing interdisciplinary stimulation for the research itself. Further thought and study are needed to determine the factors that will maximize the research productivity of doctoral nursing programs.

Faculty Specialties and Research Commitments in the South

The graduate nursing programs in the region, including those that are being planned, report considerable research activity among their doctorally prepared faculty. The specialty area with the largest number of faculty members is medical-surgical nursing, and that is the area in which most of the faculty research occurs. Table 29 shows the specialty areas, the number of faculty in each specialty area, and the number of faculty currently conducting research in each specialty.

The graduate programs estimated the percentage of their doctorally prepared nurse faculty who are engaged in an active program of research or other scholarly activity; estimates ranged from zero to 100 percent; most schools estimated 50 percent or above (see Table 30). The number of doctorally prepared nurse faculty who have published one or more research articles in referred journals in the past three years was estimated by 31 of the graduate programs (see Table 31). They report a total of 308 faculty whose writings had been published, for an average of 9.93 faculty per school.

Few of the graduate programs' doctorally prepared faculty have received grant awards to support their research in the past three years: 39 schools who responded reported a total of 150 intramural (and 77 extramural) grant awards for faculty research (see Table 32). The percent of time in the current year devoted to research by doctorally prepared nurse faculty was estimated by most of the schools at 10 to 25 percent (see Table 33).

Table 29

Specialty Area and Research Area for Doctorally Prepared Faculty in Graduate Nursing Programs in the South

	No. of Schools	Medical-Surgical	Maternal Child Health	Psych. Mental Health	Public Health	Administration: Nursing Service	Administration: Nursing Education	Curriculum	Teaching	Other	Specialty Total	Research Total
Alabama	4											
Specialty		10	11	11	0	1	3	6	15	2	59	
Research		8	10	6	3	2	2	3	-	0		34
Arkansas	2											
Specialty		6	2	2	2	-	1	-	-	1	14	
Research		4	2	2	2	-	-	-	-	1		11
Florida	2											
Specialty		6	1	1	4	-	1	4	-	6	23	
Research		5	2	-	4	-	-	4	-	6		21
Georgia	4											
Specialty		16	9	10	8	4	2	2	-	5	56	
Research		11	7	6	5	3	-	1	-	3		36
Kentucky	4											
Specialty		3	5	3	2	-	1	-	-	2	16	
Research		2	3	3	2	-		-	-	1		11
Louisiana	2											
Specialty		4	3	1	3	1	3	3	-	2	20	
Research		2	-	-	-	-	3	-	1	-		6
Maryland	2											
Specialty		16	7	8	9	2	6	3	1	8	60	
Research		12	15	10	8	5	10	1	5	12		78
Mississippi	3											
Specialty		1	2	3	1	3	3	5	1	10	29	
Research		2	1	2	1	3	1	2	2	1		15
North Carolina	5											
Specialty		16	9	4	6	6	5	6	3	7	62	
Research		7	4	2	2	6	4	2	2	22		51
South Carolina	3											
Specialty		13	10	11	8	2	3	1	1	4	53	
Research		6	6	7	8	2	3	1	-	9		42
Tennessee	2											
Specialty		6	7	7	5	-	-	-	-	-	35	
Research		2	4	4	4	-	-	-	-	-		14
Texas	8											
Specialty		35	13	21	10	6	21	11	6	4	127	
Research		19	8	6	4	4	5	1	1	7		55
Virginia	6											
Specialty		14	11	12	10	3	3	4	1	9	67	
Research		5	5	9	8	3	4	1	-	9		44
West Virginia*												
Specialty												
Research												
Total in Specialty Area	47	146	90	94	68	28	52	45	38	60	611	
Research Total		86	67	57	51	28	32	16	11	71		418

Note: Graduate school in West Virginia did not respond. Some schools did not report data for administrative faculty.

Table 30

Estimated Percent of Doctorally Prepared Nurse Faculty who Are Engaged in Research in Graduate Schools of Nursing in the South

Percent of Faculty Engaged in Research	Schools with Doctorate as Highest Degree (N=6)	Schools with Master's as Highest Degree (N=42)
100		12
95		1
94		1
90	1	2
85	1	
83		1
82		1
80	1	4
70		1
66		1
65	1	
64		1
60		1
50		3
40		1
35		1
33		1
30		1
25	1	
20		1
10		1
6		1
2		1
0		3
No Response	1	2

Table 31

Number of Doctorally Prepared Nurse Faculty who Published in Referreed Journals in the Past Three Years in Graduate Schools of Nursing in the South

Number Per School	Doctoral Programs (N=6)	Master's Programs (N=42)
44	1	
25		1
23	1	
18	1	1
16		1
15	1	
13		1
12		1
11		1
10	1	1
9		1
8		2
7		1
5		6
4		2
3		4
2		6
1		3
0		7
No Response	1	3
Number who have published	110	206

Note: Total publications reported = 316

Table 32

Number of Doctorally Prepared Nurse Faculty who Received Research Funding in the Past Three Years in Graduate Schools of Nursing in the South

Number Grants per School	Doctoral Programs (N=6)		Master's Programs (N=42)	
	Intramural	Extramural	Intramural	Extramural
19	1	1	1	
14	1			
12				
9			1	
8			1	1
7	1		2	
6				2
5				1
4		1	6	3
3	1	1	6	
2	1		6	6
1		1	8	6
0		1	8	14
No Response	1	1	3	9
Number of Faculty with Funded Grants	45	27	112	55

Note: Total faculty who received intramural grants is 157.
Total faculty who received extramural grants is 82.

Table 33

Percent of Time Devoted to Research
by Doctorally Prepared Nurse Faculty
in Graduate Schools of Nursing in the South

Percent Time in Research	Doctoral Programs (N=6)	Master's Programs (N=42)
35%		1
33		1
25	2	4
22		1
20	2	10
15		2
13		1
10	1	7
7		1
5		4
3		1
0.05		1
0		4
No Response	1	4

RESOURCE REQUIREMENTS FOR DOCTORAL NURSING EDUCATION PROGRAMS

While doctoral programs are usually built on the base of a master's program with which they share some faculty and other resources, specific resource requirements in terms of faculty and dollars must be identified. The survey of the South's nursing schools proposing to develop doctoral programs showed estimates for start-up costs between $54,000 and $200,000 and for annual operating costs between $200,000 and $400,000. These figures contrast with the figures given by the operating doctoral programs, which indicate start-up costs of $135,000 to $205,000 and operating costs of $200,000 to $750,000. While it is difficult to assign costs in a precise manner because many faculty persons teach in both the master's and doctoral programs, these ranges are not readily explained. To date there has been no published cost study of doctoral nursing education programs that provides an analysis of the faculty needs and costs attributable to doctoral education separate from the master's and other educational programs of the nursing schools.

A careful analysis of the costs is essential because the financing of the proposed doctoral programs is expected to come largely from state appropriations. The schools of nursing expect to receive some funding from federal planning grants and research grants and some income from student tuition and fees, but the overwhelming portion of the funding is expected to be provided from state appropriations of tax moneys assigned to higher education. And, state governments must have detailed information about the anticipated start-up and annual operating costs of <u>any</u> new programs that are being considered for state support.

An even more serious resource concern, especially for doctoral nursing

education, is the kinds and numbers of faculty persons required. We have already noted that the aggregate supply of doctorally prepared nurses is very small and that the number of those nurses who may be qualified and available for faculty persons to supervise the research of doctoral candidates is even smaller. Thus, it is important to know how many faculty persons with what kinds of specialty qualifications are required for a doctoral program as well as the expected dollar costs of such a program.

SREB staff has followed the work of Dr. Meredith A. Gonyea, president of The Center for Studies in Health Policy, Inc. of Washington, D.C. in analyzing costs and making cost projections for a variety of health professions education programs, including medicine, dentistry, nursing, and optometry. She uses a strategy, called "program cost analysis/construction," which constructs a picture of the cost elements of a total educational program and identifies the key elements that affect the total cost. The term "constructed cost" evolved from the Institute of Medicine 1974 study, Cost of Education in the Health Professions, to determine the average annual cost per student of education in medicine, osteopathy, dentistry, optometry, pharmacy, podiatry, veterinary medicine, and nursing. A method such as this was needed to determine the costs for separate educational programs within the health professions schools, which usually have several levels of educational programs as well as research and patient care programs as parts of their total operating responsibilities.

The technique uses data from existing programs and/or the judgment of experts in the field to identify the basic elements of the curriculum and the faculty requirements based on the proposed student enrollments and the modes of instruction that are used in offering the program. From these data it is possible to construct the costs of existing or proposed programs.

SREB asked Dr. Gonyea in the fall of 1984 to assist in preparing projections for the resources required and the related dollar costs for a typical doctoral program in nursing education in the South. The analysis was requested to answer the following questions:

1. What are the resources required to start a doctoral program?
2. What will the program structure and the curriculum look like and how much time should be included to have a quality program?
3. How many faculty are needed, of what kinds, and how much will they cost?
4. How many students should be enrolled to make the program cost-effective?
5. How much will this level of program cost?

With the Program Cost Analysis/Construction Method (PCACM) available, the Center for Study in Health Policy, Inc. had the means to construct answers to these questions. What was missing was a data base of information about the actual resources currently being used in a range of operating doctoral nursing education programs. To remedy this situation, SREB in October 1984 convened a group of program directors and deans of existing programs in the South (and Catholic University in the District of Columbia) to participate with Dr. Gonyea in a program cost analysis/construction seminar. The purpose of the seminar was to:

1. Develop a data base of information on the programs in the South using the PCACM cost analysis formats and techniques.
2. Based on these ranges, construct a "typical" doctoral nursing education program which would be "quality acceptable" and credible both to host institutions and the nursing profession.
3 Obtain information on the major issues that would influence the implementation of a "typical" doctoral nursing education program.

Data were analyzed from eight schools of nursing. Five of the doctoral programs were fully operational; two were fully approved and in the implementation stages; one program was still in the developmental state.

The remainder of this chapter, which was largely prepared by Dr. Gonyea, presents the concepts and issues related to doctoral nursing education programs in general rather than a detailed case study of the individually analyzed programs. Therefore, only summarized data is presented. Detailed information for specific use is available from The Center upon request and with approval of the participants in the seminar.

Method of Analysis/Construction

Using the PCACM format, a series of values were developed for the key variables which affect the faculty resource requirements and costs of a program.

Chart I presents these key values for a "typical" doctoral program in nursing and shows the ranges for these values which evolved during the seminar. These ranges represent the variations in the existing programs. The "typical" program was devised by consensus of the participants, based on the ranges and the judgments of the essential components of a doctoral nursing program.

Chart II details the structure of the "typical" program curriculum and constructs its resource requirements and costs.

Chart III presents the result of constructing the enrollment level which represents the most cost beneficial size, or breakeven point, for doctoral nursing education programs.

Discussion of Structure and Cost (Charts I and II)

Strategic planning for resource allocation and use is aided by identifying the key variables affecting the resource requirements and costs of a program. In the case of health professions education programs, the major variables are the faculty, the students, and the formats in which the curricula are provided,

since the "other costs" such as secretarial help, utilities and administration depend primarily on these program variables. Chart I summarizes the information about these variables for a typical doctoral program in nursing; Chart II describes such a program in detail.

Following are comments on each of the values as well as the issues related to the ranges revealed in the seminar.

Setting: The type of overall academic institution provides an indication of the environmental setting for a program. The "typical" doctoral nursing program is placed in a university Academic Health Center, which has an inherent base of resources to support graduate-level programs in the health professions. However, some doctoral nursing programs are located in research universities without academic health centers.

Program: The program name identifies the general health field--in this case--Nursing.

Degree Awarded: It is essential to note the degree to be awarded in order to identify the basic qualifications required for credentialing. In the case of doctoral nursing programs there are two major credentialing options: the academic degree, Doctor of Philosophy (Ph.D.), and the professional degree, Doctory of Nursing Science (D.N.S.). The major difference in the two is the nature of the research activities. The major trend in doctoral nursing programs is toward awarding the Ph.D.

Program Organization: How a program is organized affects a

CHART I

Key Value for a Typical Doctoral Nursing Education Program and the Ranges for Schools Participating in the SREB Seminar

	Typical Doctoral Program	Range of Participating Schools
Program: Total Years	3	
Session Type	Semester	
Session Number: Academic	6	
Summer	3	1-3
Session Length: Academic	16	10-16
Summer	12	6-16
Length in Total Weeks	132	100-145
Student Contact Hours (SCH): Total	1,188	800-1,740
Nursing Percent of Total	70	50-90
General Education Percent of Total	30	10-50
Nursing Percent in Seminar	68	40-70
Laboratory	2	0-40
Clinic/Research with Group Size of One	30	10-50
Average SCH per Week	9	8-12
Student Average: Class Size & Output	15	5-30
Faculty Contact Hours (FCH): Total	4,496	
Nursing Percent of Total	96	85-100
General Education Percent of Total	4	0-15
Average FCH per Student Output (SO)	300	150-450
Faculty Availability to Teach:		
Nursing Full-Time: Hours/Week	12	8-14
Weeks/Year	45	30-48
Hours/Year	540	240-672
General Education: Hours/Week	10	10-15
Weeks/Year	36	30-48
Hours/Year	360	300-720
FTE Faculty Required: Nursing	8.01	
General Education	0.50	
Faculty Salary: Nursing	$40,000	$30,000-50,000
General Education	30,000	20,000-40,000
Faculty Cost Percent of Total Cost:		
Nursing	40	30-50
General Education	50	40-60
Cost per Faculty Contact Hour:		
Nursing: Faculty Cost	$ 75	
Other Cost	110	
Total Cost	185	
General Education: Faculty Cost	$ 84	
Other Cost	84	
Total Cost	168	
Cost per Student Output: Total	$55,350	
Nursing Percent of Total	96	85-100
General Education Percent of Total	4	0-15
Average Cost per Student per Year	$18,450	$10,000-40,000
Graduates per Year	15	
Attrition Rate	0	
Cost per Graduate: Total	$55,350	
Average per Year	$18,450	

CHART II A

Typical Doctoral Nursing Curriculum Structure

TEACHING DEPT	COURSE	STUDENT CONTACT HOURS PER WEEK: CREDIT	SEMINAR	LAB	CLIN/RES	TOT HRS	TOTAL WEEKS	STUDENT CONTACT HOURS: TOTAL SEMINAR	LAB	CLIN/RES	TOT HRS	GROUP SIZE: SEMINAR	LAB	CLIN/RES	CLASS SIZE
YEAR 1	FALL														15
Nursing	Seminar	3	3			3	16	48	0	0	48	15			
Nursing	Seminar	3	3			3	16	48	0	0	48	15			
Nursing	Research Seminar	3	2		1	3	16	32	0	16	48	15		1	
Other	Elective	3	3			3	16	48	0	0	48	30			
Ses I	TOTAL	12	11	0	1	12	16	176	0	16	192				
YEAR 1	SPRING														
Nursing	Clinical Lab	4	3	1		4	16	48	16	0	64	15	5		15
Nursing	Methods Lab	3	3			3	16	48	0	0	48	15			
Nursing	Elective	3	3			3	16	48	0	0	48	15			
Other	Elective	3	3			3	16	48	0	0	48	30			
Ses II	TOTAL	13	12	1	0	13	16	192	16	0	208				
YEAR 1	SUMMER														
Nursing	Research Seminar	3	2		1	3	12	24	0	12	36	15		1	15
Other	Elective	3	3			3	12	36	0	0	36	30			
Other	Elective	3	3			3	12	36	0	0	36	30			
Ses III	TOTAL	9	8	0	1	9	12	96	0	12	108				
YEAR 1	TOTAL	34				12	44	464	16	28	508				15
YEAR 2	FALL														15
Nursing	Seminar	3	3			3	16	48	0	0	48	15			
Nursing	Research Seminar	3	2		1	3	16	32	0	16	48	15		1	
Nursing	Statistics	3	3			3	16	48	0	0	48	15			
Other	Elective	4	4			4	16	64	0	0	64	30			
Ses I	TOTAL	13	12	0	1	13	16	192	0	16	208				
YEAR 2	SPRING														15
Nursing	Statistics	3	3			3	16	48	0	0	48	15			
Nursing	Research Seminar	3	2		1	3	16	32	0	16	48	15		1	
Nursing	Seminar	3	3			3	16	48	0	0	48	30			
Other	Elective	3	3			3	16	48	0	0	48	30			
Ses II	TOTAL	12	11	0	1	12	16	176	0	16	192				
YEAR 2	SUMMER														15
Nursing	Research Seminar	3	2		1	3	12	24	0	12	36	15		1	
Other	Elective	3	3			3	12	36	0	0	36	30			
Other	Elective	3	3			3	12	36	0	0	36	30			
Ses III	TOTAL	9	8	0	1	9	12	96	0	12	108				
YEAR 2	TOTAL	34				12	44	464	0	44	508				15
YEAR 3	FALL														15
Nursing	Dissertation Guidance	6			4	4	16	0	0	64	64			1	
Ses I	TOTAL	6	0	0	4	4	16	0	0	64	64				
YEAR 3	SPRING														15
Nursing	Dissertation Guidance	6			4	4	16	0	0	64	64			1	
Ses II	TOTAL	6	0	0	4	4	16	0	0	64	64				
YEAR 3	SUMMER														15
Nursing	Dissertation Guidance	6			4	4	12	0	0	48	48			1	
Ses III	TOTAL	6	0	0	4	4	12	0	0	48	48				
YEAR 3	TOTAL	18				4	44	0	0	176	176				15

TRU	FACULTY CONTACT HOURS: SEMINAR	LAB	CLIN/RES	TOT/HR	TOTAL FTE HRS/WEEK	FTE REQUIRED
Nursing	48	0	0	48	12	0.25
Nursing	48	0	0	48	12	0.25
Nursing	32	0	240	272	12	1.42
Other	24	0	0	24	10	0.15
	152	0	240	392		2.07
Nursing	48	48	0	96	12	0.50
Nursing	48	0	0	48	12	0.25
Nursing	48	0	0	48	12	0.25
Other	24	0	0	24	10	0.15
	168	48	0	216		1.15
Nursing	24	0	180	204	12	1.42
Other	18	0	0	18	10	0.15
Other	18	0	0	18	10	0.15
	60	0	180	240		1.72
	380	48	420	848		1.84
Nursing	48	0	0	48	12	0.25
Nursing	32	0	240	272	12	1.42
Nursing	48	0	0	48	12	0.25
Other	32	0	0	32	10	0.20
	160	0	240	400		2.12
Nursing	48	0	0	48	12	0.25
Nursing	32	0	240	272	12	1.42
Nursing	24	0	0	24	12	0.13
Other	24	0	0	24	10	0.15
	128	0	240	368		1.94
Nursing	24	0	180	204	12	1.42
Other	18	0	0	18	10	0.15
Other	18	0	0	18	10	0.15
	60	0	180	240		1.72
	348	0	660	1,008		1.94
Nursing	0	0	960	960	12	5.00
	0	0	960	960		5.00
Nursing	0	0	960	960	12	5.00
	0	0	960	960		5.00
Nursing	0	0	720	720	12	5.00
	0	0	720	720		5.00
	0	0	2,640	2,640		5.00

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CHART II B

Typical Doctoral Nursing Resource Requirements

STUDENT CONTACT HOURS

TEACHING DEPT		CREDIT	AVG. SCH/ WEEK	TOTAL WEEKS	SEMINAR	LAB	CLIN/RES	TOT HRS	% OF TOTAL SCH
PROGRAM SUMMARY BY YEAR:	ONE	34	12	44	464	16	28	508	43%
	TWO	34	12	44	464	0	44	508	43%
	THREE	18	4	44	0	0	176	176	14%
PROGRAM TOTAL	TOTAL	86	9	132	928	16	248	1,192	100%
	% OF TOTAL				78%	1%	21%	100%	
PROGRAM SUMMARY BY TEACHING UNIT									
NURSING									
	FALL	24		16	256	0	96	352	42%
	SPRING	25		16	272	16	80	368	44%
	SUMMER	12		12	48	0	72	120	14%
	TOTAL YEAR	61		44	576	16	248	840	100%
	% OF TOTAL				68%	2%	30%	100%	
GENERAL EDUCATION		25		36	352	0	0	352	100%
	% OF TOTAL				100%	0	0	100%	

FACULTY CONTACT HOURS

CLASS SIZE	AVERAGE FCH/SO	SEMINAR	LAB	CLIN/RES	TOT/HR	% OF TOTAL FCH
15	57	360	48	420	848	19%
15	67	348	0	660	1,008	22%
15	176	0	0	2,640	2,640	59%
45	300	728	48	3,720	4,496	100%
		16%	1%	83%	100%	

	SEMINAR	LAB	CLIN/RES	TOTAL HR	FTE HRS/WK	FTE REQUIRED
	256	0	1,440	1,696	12	8.83
	248	48	1,200	1,496	12	7.79
	48	0	1,080	1,128	12	7.83
70% of Total SCH	552	48	3,720	4,320	12	8.18
96% of Total FCH	13	1	86	100%		
PERCENT TAUGHT BY THEORY FACULTY	100%	100%	100%	4,320	12	8.01
30% of Total SCH	176	0	0	176	10	0.50
4% of Total FCH	100	0	0	100%		

PROGRAM COST CONSTRUCTION — CLASS SIZE = 15 — TOTAL ENROLLMENT = 45 — STUDENT OUTPUT = 15

TEACHING UNIT:	FACULTY REQUIRED	FACULTY SALARY	FACULTY COST	FACULTY COST % OF TOTAL	OTHER COST % OF TOTAL	OTHER COST FACTOR	OTHER COST	TOTAL COST	COST PER STUDENT OUTPUT	COST PER STUDENT PER YEAR	PERCENT OF TOTAL
NURSING	8.00	$40,000	$320,000	40%	60%	1.50	$480,000	$800,000	$53,360	$17,783	96%
GENERAL EDUCATION	0.50	$30,000	$15,000	50%	50%	1.00	$15,000	$30,000	$2,000	$667	4%
PROGRAM TOTAL	8.50		$335,000				$495,000	$830,000	$55,360	$18,450	100%

program's resource requirements and costs. The longer a program is, the more expensive it will be when all else is held constant. The number of years in a program, the type of academic session (semester vs. quarter), and the length of the instructional period totaled in a standard measure, such as weeks, are the cost sensitive values. Normally, the academic structure of the institution is set, and the type of degree will determine the number of years in the program. The typical doctoral program in nursing is a three-year post master's program; the master's degree is in a clinical nursing specialty.

Student Contact Hours (SCH): The curriculum design establishes the number of hours a student is scheduled to be in contact with a faculty member and/or preceptor (see Chart II for details). For the decision-makers of the unit which has the program's primary teaching responsibility (i.e., nursing school faculty), knowing what number of hours and what percent of the total program hours they are responsible for is essential information. This information answers the question, "What amount of the student's time should be spent with the primary unit's professional faculty?" How that primary unit time is distributed--in large groups (e.g., seminars), medium groups (e.g., laboratory), or in small groups of one-to-one tutorial instruction (e.g., clinical or research supervision)--affects both the benefit of the learning experience and the resource requirements. The higher the percentage of student contact hours in the primary unit and in very small groups, the higher the cost to the primary unit. This relationship represents a balance between quality and cost. The average SCH per week is presented to allow the

planner to answer the question, "Is the load reasonable for the student?" The higher the SCH per week, the greater the stress on the students as well as the higher the faculty resource requirements and costs.

The "typical" doctoral nursing education program has a total of 1,188 student contact hours, of which 70 percent is with nursing faculty--the primary teaching responsibility unit (TRU)--and 30 percent with the general education faculty. Of the 70 percent with the nursing faculty (832 SCH) 68 percent is in the seminar mode, 2 percent in the laboratory mode, and 30 percent in the tutorial clinical/research mode. The students attend class an average of 9 hours per week.

Students: Class size is a factor in determining the efficiency of a program. Because of the emphasis in doctoral programs on research, which is conducted in a tutorial, one-on-one mode, the step levels for efficient student class sizes are in small increments. In such a situation the balance of the faculty needed within the various specialty areas is a more critical concern and will be discussed later. The class size for the "typical" nursing doctoral program is set at 15.

Faculty Contact Hours (FCH): For purposes of cost construction, faculty contact hours are used rather than credit hours, because the actual time spent in teaching a credit hour varies with the nature of the course (for example, seminar, laboratory, or individual instruction/supervision). The number of faculty hours required is determined by the number of student contact hours necessary, the

number of students in a teaching group, and the class size. (For example, a laboratory course requiring 45 student contact hours with a maximum group size of 16 students and a total class size of 32 students would require 90 faculty contact hours--that is, two groups times 45 contact hours per group.)

To arrive at the total faculty contact hours for an entire program it is necessary to: 1) calculate the number of student contact hours in each course by mode in the curriculum, 2) multiply that number for each course by the number of faculty required to teach all of the students in the class, and 3) sum the number of contact hours for all the courses. To determine the number of faculty contact hours required of each teaching responsibility unit (TRU), the calculations must be completed for each unit separately. The percentage of the total FCH for any teaching responsibility unit is determined by calculating the proportion (percentage) that teaching unit's faculty contact hours are of the total program.

Average FCH per Student Output: This measure is used to factor out the effect of class size and is calculated by dividing the number of FCHs by the number of students in the class (class size). This variable is used in comparing programs of different sizes as to the minimum requirements for faculty.

The "typical" doctoral nursing program requires that 96 percent of the faculty contact hours be provided by the nursing faculty as the primary teaching responsibility unit (TRU). This percentage is high because of the large percentage of the student contact hours (SCH) that are provided in the tutorial research mode with a group

size of one. The average FCH per student output (SO) is 300; the range within the existing programs is 150 to 450. The higher this number is, the greater the emphasis on instruction in the research mode.

The FCH/SO measure helps answer the question, "What resources are appropriate to present a cost-effective program of desirable quality?" For a doctoral nursing program the considered opinion is that a FCH/SO figure of 300 will achieve that result. A much lower FCH/SO indicates that there may be inadequate faculty resources for the tutorial activities; a much higher FCH/SO brings into question the need for such a large faculty. This is a cost versus quality consideration.

Faculty Availability: This item represents the supply of faculty time available for direct contact teaching with emphasis on the full-time faculty in the nursing school which is the primary teaching responsibility unit (TRU). This summary recognizes, but does not consider in detail, the need for a critical mass of faculty or the responsibility of using multiple types of faculty. The hours per week that a faculty member devotes to teaching and the number of weeks available for teaching determine the total number of hours available from any one faculty member for direct contact teaching. This information helps answer the questions, "What is a reasonable teaching load for faculty members considering their other required activities in research and administration?" and "How will changes in the teaching load affect the supply?" The fewer the total hours available for teaching in the doctoral program for each faculty member, the more faculty that will be required and the higher the cost. There is no universally acceptable teaching load for health professions faculty at the graduate level, but

the teaching load for university programs ranges from 8-16 hours per week. The "typical" full-time nursing faculty person comes in at the middle of this range--12 hours per week for a calendar year of 45 weeks. The general education faculty average 10 hours per week for an academic year of 36 weeks.

Full-time Equivalent (FTE) Faculty Required: The FTE faculty required is determined by dividing the minimum faculty contact hours required by the faculty contact hours available for teaching. For example, if the FCH required from the nursing school equals 4,316, and each faculty member is available to teach 540 hours per year, 8.01 FTE faculty will be required to cover the teaching responsibilities of the nursing school. Additional FTE faculty must be calculated for the general education unit. This variable provides the answer to the questions, "What is the minimum number of professional faculty (head count) needed to provide a program?" and "What are the costs of increments in class size?" At this point planners must consider where these faculty will come from because the overall available supply of qualified doctoral faculty is a major constraint.

It must be recognized that the curriculum structure will require heavier or lighter teaching loads for the faculty during certain academic sessions (for example, summer school programs) and that, within a teaching unit, individual faculty loads will vary. The average load per year is thus used as an overall budget planning tool rather than as a guide for program implementation and management.

Faculty Salary: The average faculty salary (without fringe benefits)

is used when calculating program costs. For the "typical" doctoral program, the full-time nursing salary is $40,000. The average salary for the general education faculty is $30,000. Graduate-level faculty with their lower teaching loads and higher salary costs significantly affect the cost and size of doctoral nursing programs.

Cost Factors: When the FTE faculty required is multiplied by the average faculty salary, the faculty costs for the nursing school and the general education teaching responsibility units can be determined. However, it is recognized that the faculty cost represents only a portion of the total cost of operating a program. The "Other Costs" include fringe benefits, plant maintenance, staff support, library, instructional materials, travel, and the overhead costs of central administration. These other costs must be added to the faculty costs to obtain the total program costs. Data from national studies of health professions education program costs indicate that the other cost portion is 50 to 70 percent of the total cost. For nursing schools, the other cost is 60 percent, while the faculty cost is 40 percent of the total; for general education, the split is 50-50.

Average Cost per FCH: The average cost per FCH is determined by calculating the total cost of one faculty member and dividing that value by the number of FCH provided by that faculty member. The average cost per FCH is used to compare programs with differences in student contact hours, class sizes, and with different patterns of seminar, small group, and individual instruction within the curriculum. The higher the numbers of hours in individual

instruction or very small groups, the higher the cost. The total cost per FCH for nursing is $185 where full-time faculty and all of their activities are supported; for general education, the total cost per FCH is $168.

Average Cost per Student Output: This cost is calculated by dividing the total cost by the class size. This answers the question, "What does it cost to educate a student?" For the "typical" doctoral nursing education program, the value of the total average cost per student is $55,350.

Average Cost per Student per Year: This is also a measure for comparison purposes. It is determined by dividing the total cost of the program by the number of FTE students in all years of the program. Averaging across all three years of the program results in some distortion, because the expensive research portion of the curriculum is located primarily in the last year. However, the "typical" doctoral nursing education program has an average cost per student per year of $18,450.

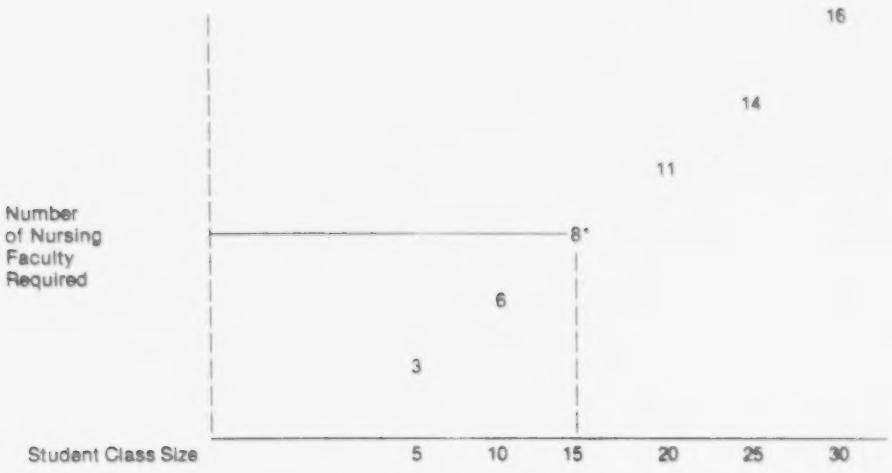
Discussion of Program Size and Start-Up Issues (Chart III)

Now that the seminar had described the "typical" doctoral program in nursing, consideration could be given to determining the most cost-beneficial size for such a program and some of the issues related to the start-up of programs. The Center for Studies in Health Policy has developed a procedure for analysis of what it calls the "Breakeven Point" for programs. The breakeven point is the size of class and faculty that most fully and effectively utilizes all of the faculty resources in delivering the program. It is the point at which the faculty demand balances the supply.

CHART III

Analysis of the Beakeven Point

A. Faculty Requirements for Various Sized Doctoral Nursing Education Programs



*8 is the number of faculty required to teach a doctoral curriculum with a class size of 15

CHART III

Analysis of the Breakeven Point

B. Analysis for Most Efficient Class Size for Doctoral Nursing Programs

Class Size	5	10	15*	20	25	30
FCH/SO	379	322	300	322	311	300
Faculty Required						
Nursing	3.40	5.74	8.01	11.49	13.82	16.02
Other	0.16	0.33	0.50	0.66	0.82	0.99
Total	3.56	6.07	8.51	12.15	14.64	17.01
Faculty Salary						
Nursing	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
Other	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000
Faculty Cost %						
Nursing	40%	40%	40%	40%	40%	40%
Other	50%	50%	50%	50%	50%	50%
Cost per Student Total of 3 years	$70,048	$59,422	$55,379	$59,422	$57,297	$55,359
Cost per student per Year	$23,349	$19,807	$18,450	$19,807	$19,099	$18,453

*Class size of 15 is the Breakeven Point at which the critical mass of faculty (8) is most efficiently used.

CHART III

Analysis of Breakeven Point

C. Analysis of Faculty Makeup for a Typical Doctoral Nursing Education Program

TEACHING RESPONSIBILITY UNIT	FACULTY SUPPLY			STUDENT CONTACT HOURS				FACULTY HOURS REQUIRED				FACULTY REQUIRED COMPARED TO CRITICAL MASS		
	Critical Mass	Average Hrs/Wk	Total FCH	Percent in TRU	Percent by Mode: Theory	Lab	Research	Theory	Lab	Research	Total	Average FCH per Student Output	Total Faculty Required	Excess Over Critical Mass
NURSING DEPARTMENT														
Critical Mass Requires Specialties:	7	12	3,780	70	69	2	30	552	48	3,720	4,320	288	8.01	1.01
Medical-Surgical 1														
Maternal-Child 1														
Pediatrics 1														
Psychiatric 1														
Community Health 1														
Geriatrics 1														
Administration 1														
Functions:														
Theory 3														
Research 3														
(The functional areas can be covered by faculty persons in the specialties.)														
OTHER NON-NURSING DEPARTMENTS		10	0	30	100	0	0	176	0	0	176	12	0.50	0.50
PROGRAM SUMMARY	7	12	3,780	100%	Total Hours = 1,188			728	48	3,720	4,496	300	8.51	1.51

Average per Week = 9 Class Size 15
Total Weeks = 132
Total SCH = 1,188

Teaching Availability
Nursing = 45 Weeks
Other = 38 Weeks

Student Group Size:
Nursing Classroom = 15 Other:
Lab = 5 Classroom = 30
Research = 1 Lab = 15

Assumption about a Critical Mass of Faculty. A key to breakeven point analysis is the assumption that the program's curriculum material must be taught by faculty persons who, for the most part, have virtually exclusive expertise in a range of clinical nursing specialties and functional areas. The seminar group identified the seven specialties as:

Medical-surgical	1 faculty person
Maternal-child	1 faculty person
Pediatric	1 faculty person
Psychiatric/mental health	1 faculty person
Community health	1 faculty person
Geriatric	1 faculty person
Administration	1 faculty person
	7 faculty persons

These faculty persons should also possess expertise in the following functional areas:

Nursing theory	3 faculty persons
Research	3 faculty persons
	6 faculty persons

Based on this assumption, the minimum faculty number of seven persons is defined as the critical mass of faculty required to provide a doctoral program in nursing. When the assumptions about faculty teaching loads, student contact hours, curriculum or organization, etc. that have been made for the "typical" doctoral program are used in the breakeven calculation, the breakeven point turns out to be a faculty size of eight and a student class size of 15. This would require the seven faculty specialists that make up the critical mass plus

one additional faculty person. As shown in Chart III, class sizes of five fewer or five more students from the level of 15 are more expensive per unit. Class sizes above 15 require more faculty to meet the tutorial needs of the additional students, and class sizes below 15 do not effectively use the defined critical mass of faculty.

Start-up Costs. Start-up costs for new programs are usually much higher than operating costs because the programs must have the full quota of staff available even though the students are not yet available in the full class size and are not yet in the advanced years of the program. Those nursing schools that plan to build the doctoral programs on existing master's level programs have an advantage in that they will be able to use some of the existing master's level faculty during the transition period so that they will not need a full staff of new specialists to work with the doctoral students. They will be able to add faculty as the students advance to the tutorial/research year when the full complement of faculty will be needed. This assumes that there is currently some unused faculty capacity in the existing master's programs.

Comment

The seminar used the experience and judgments of nurse educators from existing doctoral programs in nursing from the Southern region to construct a "typical" doctoral program using the Program Cost/Analysis Construction Method of The Center for Studies of Health Policy, Inc. This "typical" program is not to be considered as a model, but it does provide a guideline that planners and policymakers may use for making judgments about doctoral program proposals and operations.

The "typical" program as developed describes a cost-beneficial class size of

15 students with the utilization of 300 faculty contact hours per student/graduate. The average cost per student per year will be in the range of $18,000 to $20,000 for a total of $55,000 to $60,000 per graduate. And the program will require eight full-time graduate level faculty persons, seven of whom must be spread among the seven clinical nursing specialists defined in the critical mass.

Actually no program will be developed that precisely meets this mathematical model. A class size of 10 to 15 students will still produce a relatively cost-beneficial program. The 300 faculty contact hours per student could be varied by 50 hours in either direction without a great deal of change in the figures. Faculty might be expected to work 14 hours rather than 12 hours per week in direct student teaching, in which case the program would require only the seven "critical mass" faculty. There might also be variations in the organization of the curriculum The PCACM approach offers means for planners to change their assumptions about these items and see what effect the changes will have on the resources required in terms of faculty and dollars. Some schools and their state higher education agencies may feel that it is desirable to have much higher faculty/student ratios with more individualized instruction and that this additional quality is worth the additional cost. However, the approach of the PCACM provides a technique for assessing just what those trade-offs will be.

Who Will Pay? The nursing schools that are proposing new doctoral programs project that they will receive some funding from the federal government--especially for planning and for research grants. They will also receive some funding from student tuition and fees, but most of the funding is expected to come from state appropriations through the states' higher education agencies.

The federal government has provided a variety of grant programs, administered by the Division of Nursing of the Department of Health and Human Services. These include planning grants, research grants, and special project grants. The grants are competitive, and proposals are reviewed by committees of peers who make judgments about the quality of the proposals and the priorities for funding. But, the future of federal funds is uncertain. The Reagan Administration has been pressing for sharp reductions and eventual elimination of funding for health professions education, while Congress has repeatedly voted for restoration, although the total support level has substantially declined in recent years. In late 1984, President Reagan vetoed legislation to establish a National Institute for Nursing Research which would have increased funding for nursing research. Although a Center for Nursing Research has subsequently been created within the Division of Nursing, the veto also abolished the authorization for the Nurse Training Act. New initiatives are being undertaken by the new Congress despite the president's proposal to eliminate all funding for nursing education, and no one knows what to expect in the face of huge proposed budget deficits. It appears unlikely that there will be any major increases in funding, and so the competition for federal planning grants and research grants will increase as the numbers of doctoral nursing education programs grow. Traditionally the nursing schools of the South have received less than their proportionate share (based on population) of federal nursing research funds, but it is not clear whether this is the result of fewer applications being submitted, small amounts sought, poorer quality applications, or other factors.

Tuition rates and fees vary greatly by state and institution. The ranges are from $300 to $5,000 per year for in-state residents and $900 to $10,000 per

year for out-of-state residents, but most states are currently raising tuition charges. Tuition makes up only a small portion of the total cost of providing doctoral education, but, at the same time, tuition levels of $5,000 to $10,000 per year are burdensome for most nurses so that they must continue to work while they pursue their studies on a part-time basis. Limited numbers of student loans are available from the federal government, but these are also being cut back under pressure to reduce the federal budget deficit.

State governments have been pressed to cover all of their existing obligation, particularly as the federal government has cut back the funding for hundreds of programs from general revenue sharing to health professions education and turned back the responsibility for all of those programs to the states. In addition, the states have been obliged to devote more state funds to public elementary and secondary education and to prisons. The result is that there has been little money to fund new programs in higher education. In many states, faculty salaries have lagged behind the rates of inflation as the states have struggled to cope with the problems of reduced federal funding, indigent medical care, and increasing costs of maintaining aging buildings and highways. Taxes have been increased in most states despite recent taxpayer revolts. However, the states will be increasingly cautious about undertaking new programs that will require the states to provide ongoing funding in future years unless they can be assured of the need and the demand and that the programs are being developed and shared as cost effectively as possible.

Faculty Resources. A major resource concern for doctoral nursing education programs is the availability of qualified faculty for the programs. Matarazzo (1971) noted that it requires 5 to 10 good Ph.D. nurses to provide the critical mass of faculty needed for a doctoral program. These are nurses

who have some published research work beyond their doctoral studies, have served on dissertation committees, and have been successful in writing funded research proposals. Such persons are in very short supply.

The PCACM analysis found that a "typical" doctoral program requires a faculty of eight full-time equivalent faculty persons for the nursing school. These should be faculty persons who have engaged in independent research and supervised doctoral students in dissertation work. The survey of the schools of nursing that currently offered the master's as their highest degree found that there were 79 doctoral faculty who have served on doctoral dissertation committees. There were 46 faculty persons who had been co-chair of such a committee. It is not clear whether these 46 were included among the 79 who have served on a dissertation committee. The survey of the schools that currently offer the doctorate showed 110 persons who had served on a dissertation committee and 77 who had been a co-chair of such a committee (see Table 34). This represents a total of 189 to 312 persons who are qualified to be faculty for <u>all</u> of the new and existing doctoral programs in the South. Additional qualified faculty persons might be recruited from other parts of the nation, but the proposed expansion of doctoral nursing programs in other regions indicates that there will be stiff competition in doing so. There are clearly faculty constraints that will limit how much expansion of doctoral education will be possible.

Table 34

Faculty Experience with Dissertation Advisement
In Nursing Programs Offering Graduate
Nursing Degrees Within SREB States

	Highest Degree Offered	Committee Member	Co-Chair of Committee
Alabama	Master's	4	1
	Doctoral	29	20
Arkansas	Master's	0	0
Florida	Master's	5	4
	Doctoral	7	7
Georgia	Master's	15	3
Kentucky	Master's	9	7
Louisiana	Master's	3	1
Maryland	Master's	0	0
	Doctoral	30	17
Mississippi	Master's	6	1
North Carolina	Master's	4	11
South Carolina	Master's	14	5
Tennessee	Master's	4	4
Texas	Master's	10	7
	Doctoral	44	33
Virginia	Master's	5	2
	Doctoral	10	4
West Virginia*		—	—
	Master's	79	46
Totals	Doctoral	120	81

*Graduate school in West Virginia did not respond.

CONCLUSIONS

From the SCCEN survey of schools of nursing, hospitals, and state health agencies, it is apparent that there is a growing need for doctoral education in nursing. The schools documented a need for 1,077 additional doctoral nurses by 1990, and they felt they could actually employ 827 by that time. They expected an additional 1,115 of their faculty nurses to enroll in doctoral programs by then.

The hospitals described a need for 280 doctoral nurses and felt they could employ that many by 1990. They expected 413 nurses of their staff to enroll in doctoral programs in the next five years. The state health agencies expect to employ 14 doctoral nurses by 1990, and they expect 34 staff nurses to enroll in doctoral programs by then.

The total of doctoral nurses all respondents expect to employ by 1990 is 1,121, although they describe an overall need for 1,371 total nurses. There are 1,018 faculty or staff nurses currently enrolled in doctoral programs, and they can be expected to fill all but 103 of the 1,121 positions available by 1990. If we assume that 50 percent of these additional 103 nurses will take their doctorates in nursing (the present rate is 33 percent), the number of additional nurses with doctorates in nursing needed by 1990 will be 52. There are presently 314 staff persons of these agencies enrolled in doctoral programs in nursing for a grand total of 369 additional doctoral graduates of nursing needed by the region by 1990. At the completion rate of 55 per year from the South's existing doctoral programs, the region will be short by 91 doctoral nurses in 1990. There will be some additional graduations from the region's two newest schools by 1990, but they will provide only modest relief.

This calculation does not include attrition of doctoral nurses for which we have no data. Nurses obtain their doctorates later in life than persons in most other fields, but they also tend to remain in the field in higher proportions (Brimmer, 1983). However, there will be some attrition, which will aggravate the need.

The survey found that 1,562 nurses are expected to enroll in doctoral programs in the next five years. If 50 percent of them enter nursing doctoral programs, the region will need a total of 781 entering positions in doctoral nursing education programs, or an average of 156 new positions each year. If 70 percent of these nurses choose doctoral programs in nursing, a total of 1,093 entering positions or 219 per year will be needed. The South now has 135 entering positions per year. At the 50 percent rate, the region will need an additional 21 openings per year; at the 70 percent rate, the South will need an additional 84 entering positions per year. At the 50 percent rate, the region will need one or two additional doctoral nursing education programs of the "typical" class size of 15. At the 70 percent rate, the South will need five or six additional programs.

The South's existing doctoral programs enrolled 451 students (215 full-time and 236 part-time) in 1984-85. The existing programs, except the new program at the University of Florida, do not maintain waiting lists of qualified applicants, and they do not turn away any qualified applicants. All but one of the six programs are underenrolled in relation to their planned capacities.

This matter of the insufficient demand of applicants for graduate programs in nursing, despite a demonstrated need for doctoral nurses, is troublesome. This is probably the result of cutbacks in federal stipends and loans, but this situation shows little promise of improving. In fact, it is likely that the

pressures on potential applicants will worsen as the states increase their tuitions, as some of the states are now doing.

As long as the existing programs remain underenrolled, it is difficult to suggest that any new doctoral education programs should be undertaken. New programs would likely also be underenrolled and would draw applicants from the existing schools.

While there is documented need for an additional 21 to 84 entering positions in doctoral nursing education programs, there is definitely no need for an additional 22 programs that are being contemplated. States that feel that additional doctoral programs in nursing are needed should carefully consider which proposals they approve. Many states would do better to give candidates stipends of $10,000 and send them to underenrolled Academic Common Market schools rather than to start their own programs at a cost of $18,000 to $20,000 per student per year. Sharing of programs will also help make the best use of critical faculty and research facilities. Larger programs promise greater strength in both teaching and research.

The reduced enrollments in graduate nursing education programs at both master's and doctoral levels suggest that the states and other support groups should consider establishing stipend programs for graduate nursing students. These stipends should be of sufficient size to allow students to attend school on a full-time basis. They should also be monitored to assure that they are being well utilized. In this way states could assure an adequate supply of well-educated nurse leaders for academia's purposes and for positions in the increasingly technological health care delivery system. The need for such stipends is presently greater than the need for additional graduate educational programs in nursing.

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